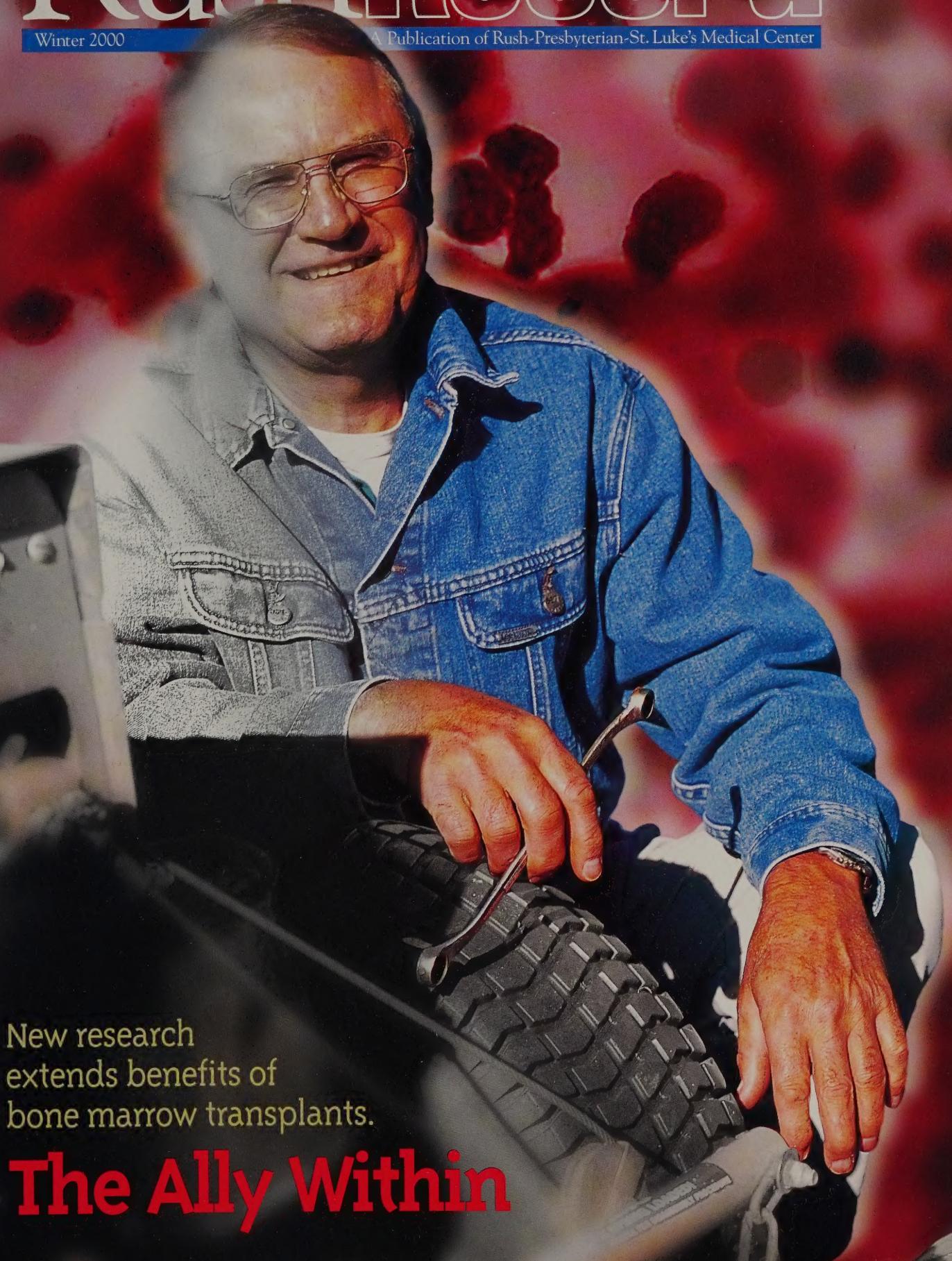


# RushRecord

Winter 2000

A Publication of Rush-Presbyterian-St. Luke's Medical Center



New research  
extends benefits of  
bone marrow transplants.

## The Ally Within

# RushRecord

Winter 2000

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**Editor:**

Jill Waite

**Managing Editor:**

Judy Grossman

**Writers:**

Charles Bila

Sean Carr

Cheryl Janusz

Anne M. O'Reilly

**Design and Art Direction:**

Brierton Design

Cover photo by Andrew Campbell

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Diane McKeever  
*Vice President*

Ellen M. Hunt  
*Director of Publications*

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Rush-Presbyterian-St. Luke's Medical Center  
1700 West Van Buren, Suite 250  
Chicago, IL 60612

For additional information on any of the articles in this issue, please call (312) 942-5580.

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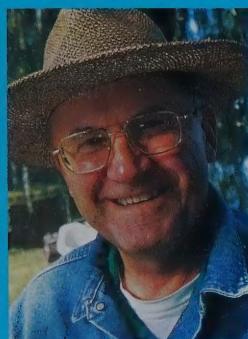
A Member of the  
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 **RUSH**

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# When Less Is More

by Anne M. O'Reilly

**O**n a typical Friday in the fall, fifth grade teacher Paulette VanOoteghem starts a science lesson in room 27 of Greene Elementary School. In this South Bend, Indiana, classroom, Mrs. Van, as her students call her, keeps her students interested and on their toes.

"You'll actually have to endure the painful act of thinking," she playfully remarks after she tells them to get started on some science questions from their textbooks.

As one student reads the word "glimpse," she looks quizzically at Mrs. Van. "When you get a little glimpse of something, you get a little look at it," Mrs. Van explains. "OK! Now I get it," the girl says, excitedly.

Not that long ago, getting a glimpse of many things wasn't easy for 54-year-old VanOoteghem. Her vision was blurred by a brain tumor that

*Patients with brain tumors and other disorders benefit from improved imaging and surgical techniques.*

her doctor found in the summer of 1998. Her physician said that eventually she would need surgery to remove the tumor. But the surgery her doctor described seemed more frightening than the tumor itself. The typical procedure involves

doctors shaving the patient's head, removing the front section of the skull, retracting the brain and taking the tumor out. The step of retracting, or pulling on the brain, poses a great risk — the possibility of damaging vital brain tissue.

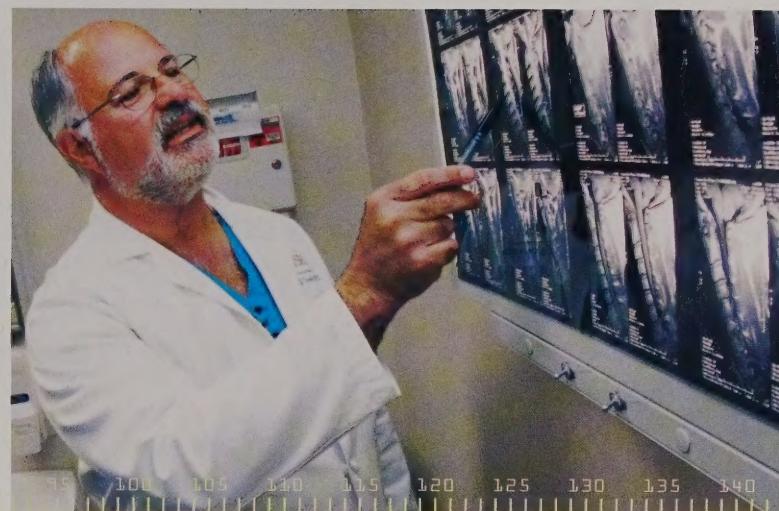
Not convinced that surgery was necessary, VanOoteghem sought a second

opinion from Rush surgeon Leonard Cerullo, MD, co-director of the Rush Neuroscience Institute and chairman of the Department of Neurosurgery. Cerullo also recommended surgery, but he described a very different procedure, which would not involve retracting the brain or a major





Thanks to a recent procedure to remove a brain tumor, teacher Paulette VanOoteghem can continue to work with her fifth grade students.



Neurosurgeons like Leonard Cerullo, MD, can now more accurately pinpoint problem areas in the brain.

incision. With the surgery that Cerullo described, VanOoteghem would face a lower risk of infection and complications and wouldn't undergo the ordeal of losing her hair.

After considering her options, VanOoteghem chose the route that Cerullo suggested. During a five-hour surgery, Cerullo removed the tumor in a relatively new procedure that has only been performed in a few medical centers around the country. He did so with the help of craniofacial surgeon John Polley, MD, director of the Rush Craniofacial Center and chairman of the Department of Plastic and Reconstructive Surgery. First, Polley carefully made a small half-moon incision above the right eyebrow. Through this incision, the upper orbital bone above the eye was removed. Using image-guided surgical techniques and a microscope to identify the tumor tissue, Cerullo successfully removed the noncancerous mass. Then, Polley carefully put the bone back into place. "I fit the bone back in like a piece of a puzzle," he says. "It's very nontraumatic to the brain."

Polley treats children and adults with craniofacial deformities (see story on page 13), but his work is also essential in neurosurgery. "To give access to the brain for neurosurgical work, I use the same techniques here that I use when rebuilding faces," Polley says.

Five days after surgery, VanOoteghem left Rush. She remembers being surprised at the small scar

over her eye. "I thought to myself, if I had fallen on my driveway on the way into my house and scraped it up — it would have looked worse at the end of five days than this did," she says. While her eyebrow largely hides it now, eventually the slight scar will fade entirely, Polley says.

#### A roadmap of the brain

VanOoteghem's case shows how neurosurgery has evolved over the years. The 1990s, dubbed the Decade of the Brain by then-President George Bush, saw dramatic technological and medical advances in the field of neurosurgery. With better imaging techniques and new instruments, the specialty has grown to provide more and better options for patients who suffer from conditions such as head injuries, tumors, congenital abnormalities and aneurysms.

Up until 30 years ago, though, neurosurgeons often performed procedures without a "roadmap" of a patient's brain. "In the early days of brain surgery, X-rays were the only imaging studies available," Cerullo says. "Many times, the surgeons basically went on exploratory missions —

not knowing what they were going to find, and too often being surprised by what was found."

Not knowing the location of the problem made the process frustrating for the neurosurgical team and the patients, says Walter Whisler, MD, PhD, chairman emeritus of neurosurgery at Rush, who started as a medical student in 1955. "One of the biggest problems we had in my era was a patient would have something wrong and we'd have evidence that there was a lot of pressure inside the head — through headaches or vision problems — but it was very difficult to know precisely where the tumor was," he says.

A major step forward for neurosurgery was improving imaging techniques. With computerized tomography (CT) and magnetic resonance imaging (MRI), the surgeon sees a clear picture of the brain before making an incision.

First introduced in 1973, CT scanners X-ray the brain from many angles. The X-ray beams are detected by the scanner and analyzed by a computer. Subsequently, MRI was created. It uses magnets and radio waves to photograph the brain without exposing the body to X-rays.

These tools, which have been refined since they were created, are essential for a technique called image-guided surgery.

Before surgery, a computer merges CT and MRI scans to create a three-dimensional picture of the brain. During

(continued on page 16)

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**Many believe that surgery will be a treatment option for diseases that have been traditionally out of the realm of the neurosurgeon.**

# Germ Warfare

Today, it is a well-known fact that bacteria can cause disease. But a little more than a century ago, the "germ theory" was still fighting for acceptance.

By Judy Grossman

Operating room personnel at Rush must follow strict protocols for scrubbing their hands before surgery — including 15 brush strokes on every surface of the hand and forearm, and 25 strokes under each fingernail.

Photography by Jean Clough





To minimize the risk of picking up harmful bacteria, which might be transmitted to the patient, surgeons receive assistance in putting on gowns and gloves.

**B**acteria. We can't see them, except under a microscope, but they're everywhere. They're tenacious. They're resilient. And they're capable of causing a legion of infections and diseases, from *E. coli* to tuberculosis.

We live in a world where even children are aware that bacteria can be harmful, so we don't think twice about taking precautions against infection. We avoid eating raw meat and poultry, we wash our hands frequently and we cover our mouths when we cough or sneeze.

Hospital patients are especially susceptible to bacterial infections because their immune systems are weakened by illness, or because they have wounds — open windows through which microscopic invaders can enter the body. Because they are so vulnerable, and because infections in hospitals can be transmitted "horizontally" — from patient to health care worker to another patient — hospitals go to great lengths to keep bacteria under control.

Today, it seems like common sense to take such precautions as sterilizing instruments, disinfecting wounds and wearing protective clothing during operations, but hospitals weren't always so careful. Since bacteria are invisible to the naked eye, before the advent of the microscope in the 1630s, physicians didn't even know bacteria existed, let alone caused disease. And if bacteria didn't exist, there was no need to guard against them.

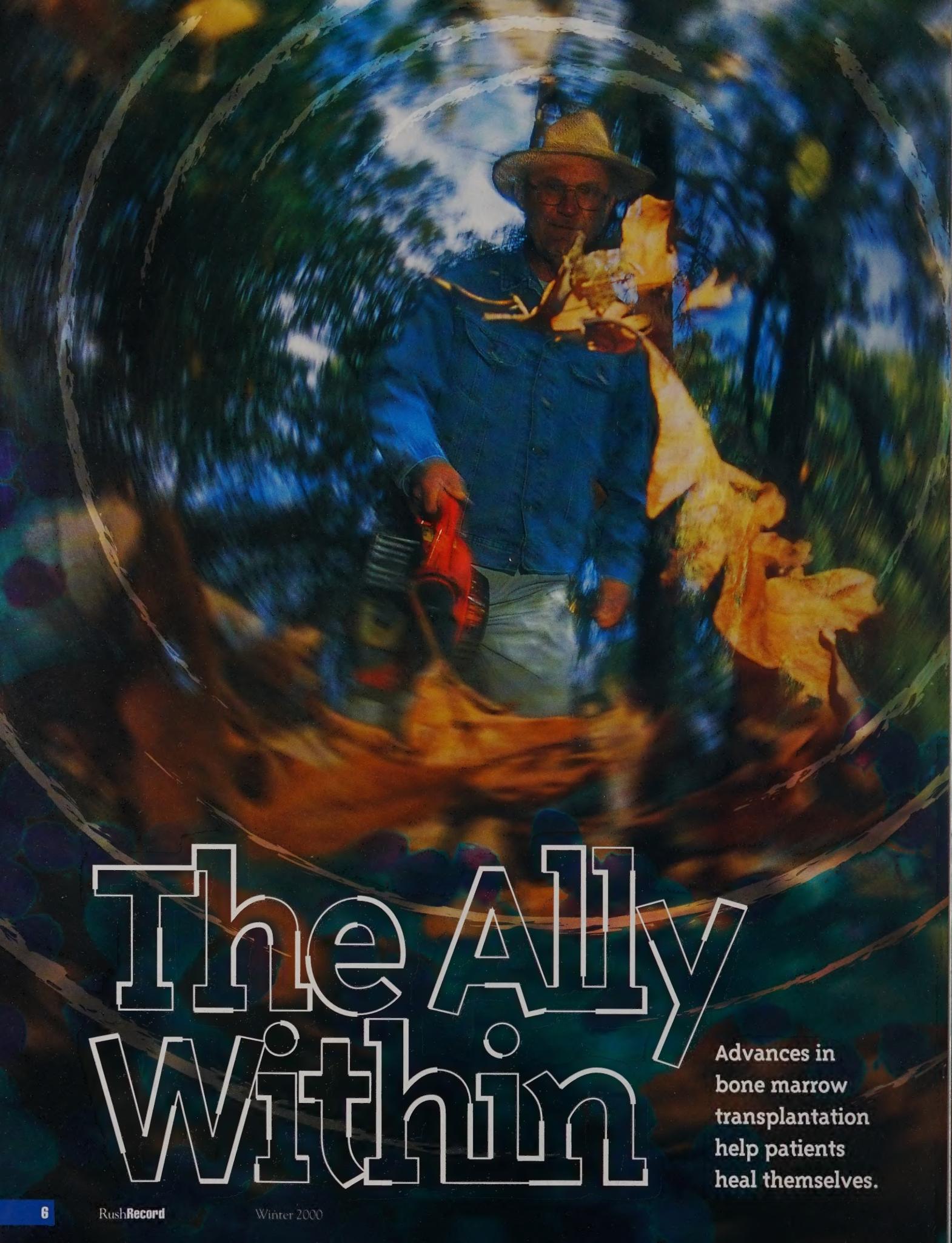
Although the medical community ultimately embraced the notion of disease-causing bacteria, in its infancy, the "germ theory" created as much controversy and touched off as many heated debates as abortion, euthanasia and cloning do now. The skepticism that greeted Antonie van Leeuwenhoeck's discovery of bacteria in 1637 had built to a crescendo by the mid-1800s that caused a great divide within the medical community.

#### The "Germ Theory" meets resistance

Rather than celebrate the birth of this exciting new science of bacteriology, the medical community thumbed its nose at the mere suggestion that tiny organisms might be responsible for disease, and germ theory pioneers like van Leeuwenhoeck and Ignaz Semmelweis were fiercely attacked.

(continued on page 17)





# The Ally Within

Advances in  
bone marrow  
transplantation  
help patients  
heal themselves.



by Jill Waite

But bone marrow has its adversaries, with many cancers posing a serious threat to bone marrow and the functions it performs. For example, leukemias originate from cells in bone marrow. Other cancers, like lymphoma, eventually invade the bone marrow and destroy its ability to produce the cells that keep us strong and healthy.

And cancer isn't bone marrow's only foe. High-dose chemotherapy and radiation, although effective in killing deadly cancer cells, can also wipe out or cripple cells that the body needs.

#### **Bone marrow's power to prolong survival**

More than 30 years ago, researchers began exploring what seemed a simple idea to help cancer patients with diseased or damaged bone marrow — replace the sick bone marrow with healthy bone marrow. Since then, researchers have learned a lot about the nature of bone marrow, its cells and their power to prolong survival. "As people did more bone marrow transplants, it became more and more obvious that these transplants were helping restore the immune system's ability to fight disease and infection," says Hans-G. Klingemann, MD, PhD, director of the Thomas Hazen Thorne Bone Marrow Transplant Center at the Rush Cancer Institute.

Healthy bone marrow, the soft spongy material inside our bones, systematically churns out stem cells, the cells that will eventually become red blood cells, white blood cells and platelets. Without this highly efficient cell factory, we would bleed uncontrollably when injured, tissues would starve from lack of oxygen and our bodies would become welcome mats for a host of infections and diseases.

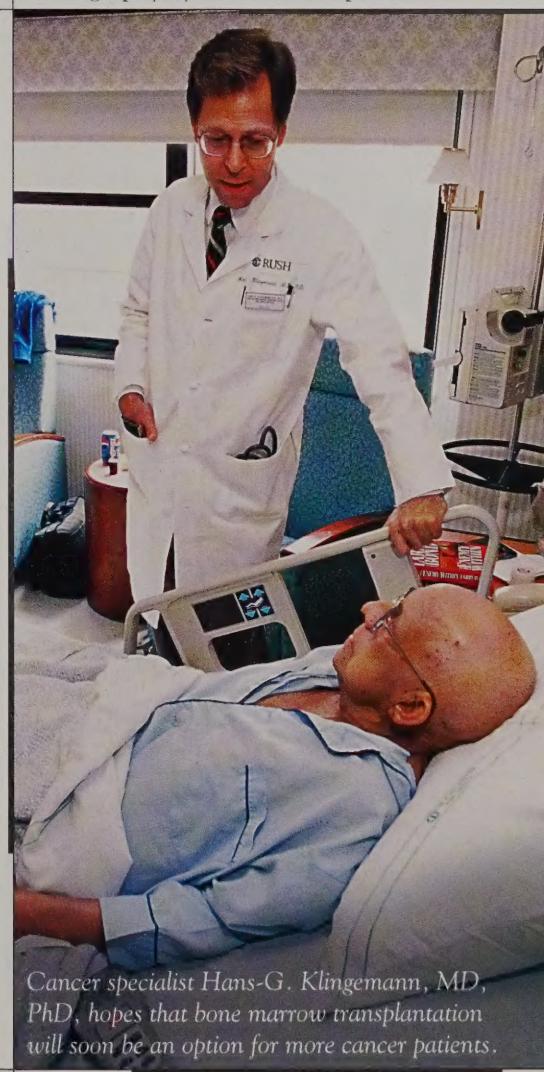
By transplanting bone marrow from donors into patients with leukemia and other blood cancers, doctors were in fact transplanting the donor's immune system. In doing this, they were equipping patients with the reserves to fight off the recurrence of cancer and maintain their strength.

#### **Improvements in technique**

In the early days of bone marrow transplantation, all donors underwent surgery to remove bone marrow and its accompanying stem cells. Today most donors are given drugs to push stem cells out of their bone marrow and into the blood, making collection of the cells easier on the donor. The procedure takes two to four hours. A catheter is placed in the arm of the donor. Blood is withdrawn via the catheter and sent to a centrifuge machine that separates the stem cells from the plasma and blood. The stem cells are then gathered for transplantation while the plasma and blood return to the donor by way of a catheter in the other arm.

Because actual bone marrow may not always be involved in transplants, the term *stem cell* transplantation is often more accurate. But, since the benefit of the transplantation can be found in the bone marrow, the older term is still commonly used.

Photography by Andrew Campbell



Cancer specialist Hans-G. Klingemann, MD, PhD, hopes that bone marrow transplantation will soon be an option for more cancer patients.

## Creating more options for more people

Although bone marrow transplantation in combination with high-dose chemotherapy and radiation therapy has become a standard treatment for leukemias and lymphomas, this is only the case when a matched, or compatible, donor can be found. More often than not, there is no compatible donor, since only 30 percent of patients have a related donor and just 30 to 40 percent have an unrelated donor. Because of the potential for complications, older patients (age 55 and older) do not even qualify for transplantation. So for many, bone marrow transplantation is not an option.

But researchers are working to change that. By exploring new approaches to different types of cancers, Klingemann, an international expert in blood malignancies, and his associates want to find even more opportunities for treatment and, eventually, cure. "Our

## Minitransplants

Until the early 1990s, high doses of chemotherapy were once considered necessary before bone marrow transplantation to create space in the bone cavity for transplanted cells, eliminate malignant cells and suppress the immune system's rejection of a donor transplant. In the last five years, though, this has changed. "For certain diseases that don't grow quickly, we have found that one can reduce the dose of chemotherapy and still achieve a good anti-cancer effect by using donor cells, or T lymphocytes, which find and attack cancer cells," says Hans-G. Klingemann, MD, PhD, director of the Thomas Hazen Thorne Bone Marrow Transplant Center at Rush.

These "minitransplants," which are performed on an outpatient basis, are less toxic and have fewer complications than bone marrow transplants that use high doses. Currently minitransplants are being done worldwide with an increasing frequency and are no longer considered experimental.

dream now is to have the capabilities to effectively treat as many patients with bone marrow transplantation as possible," says Ying Tam, PhD, a researcher at Rush's bone marrow transplant center. "And right now we are focusing on making autologous transplants — transplants for which patients provide their own stem cells — as effective as allogeneic, or donor, transplants," he says.

For diseases that don't involve bone marrow, such as breast or ovarian cancer, an autologous transplant boosts the immune system with an arsenal of stem cells to help patients stave off the return of disease following chemotherapy and radiation. But when the bone marrow itself is diseased, doctors are presented with a major challenge.

If doctors took out diseased bone marrow and then reintroduced it to the patient via transplantation it would be like vacuuming a dirty rug and then blowing the dust back onto the floor. That's why researchers are looking at ways to clean the bone marrow of cancer cells before the bone marrow is removed. The cleaner the transplanted bone marrow, the better the chances for living longer.

## New drugs work with old treatments

A clinical trial at Rush, the only one of its kind in the nation, may pave the way to successful autologous transplants for patients with chronic lymphocytic leukemia by using a monoclonal antibody called Rituxan in combination with high-dose chemotherapy and radiation. Chronic lymphocytic leukemia is marked by the overproduction of white blood cells, or lymphocytes, that mature abnormally and are defective. Although these lymphocytes may look normal, they are ill equipped to fight disease like other white blood cells. Instead, they squeeze out good blood cells and block their ability to function.

Rituxan is considered a form of immunotherapy — a mode of treatment that promotes or supports the immune system's response to diseases like cancer. When functioning properly, the body's natural immune system wards off cancer cells with its own armed forces, which include T lymphocyte cells, antibodies and natural killer cells. If there is a glitch

in that system, cancer cells can divide and multiply. With immunotherapy, scientists try to mimic the body's natural defense system by manipulating cells so that they can kill or suppress the growth of cancer and keep it from returning.

Although investigational, an autologous bone marrow transplant with Rituxan offered what 62-year-old Dick Glogovsky, a recently retired school administrator, believed was his best chance to live a longer and healthier life.

In the earlier stages of chronic lymphocytic leukemia, the best doctors can do for patients like Glogovsky is to watch and wait. So for two years after his initial diagnosis, Glogovsky regularly visited Rush hematologist Stephanie Gregory, MD, so that she could monitor his disease. Although the disease drained him of his usual energy and the lymph nodes in his neck were swollen from the overproduction of lymphocytes, he persevered and remained hopeful. But the day finally came when doctors told him that his disease had advanced, and he was forced to ask the question that had haunted him for the past two years: How long do I have?

The response was disheartening for Glogovsky and his family. "They told me it was hard to say. It could be 10 years,

*Hans-G. Klingemann, MD, PhD, reviews the bone marrow transplant process with a patient.*





An autologous bone marrow transplant has given Dick Glogovsky the energy to enjoy his retirement and the great outdoors.

six years or three years, depending on how and where the disease went," Glogovsky says. "They told me that it would never completely go away unless I had a bone marrow transplant."

Glogovsky met with Klingemann and Leanne Berkahn, MD, the principle investigator of the Rituxan trial at Rush. Although allogeneic bone marrow transplantation is a standard treatment for chronic lymphocytic leukemia, Glogovsky's age and the unavailability of a donor made that impossible. Fortunately, though, the Rituxan clinical trial was about to begin. After carefully weighing his options, Glogovsky decided

to take a chance and became one of the trial's first patients.

To prepare for transplantation, Glogovsky first underwent six months of a combination chemotherapy regimen being studied by Gregory and her colleagues. "We wanted to eliminate as much tumor as possible to prepare for bone marrow transplantation," Gregory says. After one more round of high-dose chemotherapy, Rituxan was administered intravenously to further reduce the number of cancer cells in his bone marrow. Soon after, his stem cells were collected and Glogovsky received another dose of chemotherapy and a round of radiation to eliminate even more disease. Finally, his stem cells were transplanted back into his system by injection.

Since it takes about 10 days for the stem cells to produce their immune effect, Glogovsky was observed closely for signs of infection. Except for a mild fever and a loss of appetite, Glogovsky sailed through the recovery period. Soon he was home, regaining his strength so that he could enjoy his life the way he had always planned.

Glogovsky is currently disease free. Even more important to him, he feels good. "In the past few months, I've been doing everything I used to do. In fact, I've been doing even more," he says.

He now enjoys spending most of his down time by being up — playing golf and tending to his yard. He is also an entrepreneur, having successfully developed land near his Libertyville home into a subdivision where he hopes to build a new place for himself and his wife, June.

Without this novel treatment, Glogovsky may have endured relentless rounds of chemotherapy and radiation, leaving him sick and tired. At the very best, he would have had five, maybe 10 more years — years in which his quality of life might have significantly diminished. His ultimate outcome is still uncertain, but Glogovsky now has what he feared he would lose, energy and hope.

And although it would have been unimaginable a mere decade ago, it is his very own bone marrow, once ravaged by disease, that protects him and keeps him going strong. ■

## Immunotherapy and the Sramek Center for Cellular Cancer Treatments



"In the research laboratory we are interested in finding more ways to use the immune system as a means of attacking cancer," says Hans-G. Klingemann, MD, PhD, director of Rush's Thomas Hazen Thorne Bone Marrow Transplant Center.

"And with immunotherapy, which promotes the immune system's response against cancer, it's all about the manipulation and expansion of cells," he says.

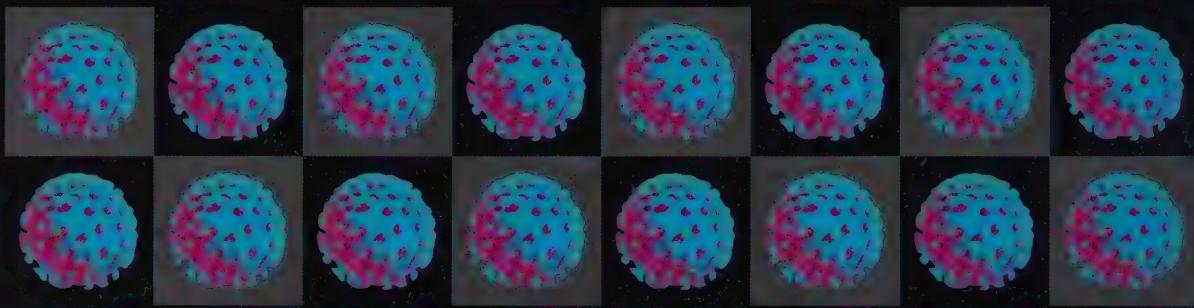
At Rush, Klingemann and his colleagues have been working closely with cells that they hope will enhance the body's ability to annihilate cancer.

Once the modes of production for these cancer-fighting cells have been perfected in the research lab, a new facility at Rush will produce them in mass quantities and dispense them for doctors to use in cancer patients. The facility, the Elmer and Sylvia Sramek Center for Cellular Cancer Treatments, scheduled for completion in mid 2000, will be the only one of its kind in Chicago.

"This facility will be like a pharmacy, but instead of dispensing drugs it will dispense cells," Klingemann says.

When producing these cells, it is imperative that strict guidelines are followed and that the production environment is uncontaminated so that cells, and all products created from cells, are safe for patient use. The new facility will be sterile, complete with high-efficiency air filters, nonporous paint and steel ceilings and floors, and will comply with federal Food and Drug Administration standards for good manufacturing practice. The staff will be specially trained in producing these cells and will meticulously document all procedures.

The hope is that these cells can eventually be used in combination with bone marrow transplantation, chemotherapy and radiation to pack a truly powerful punch against cancer.

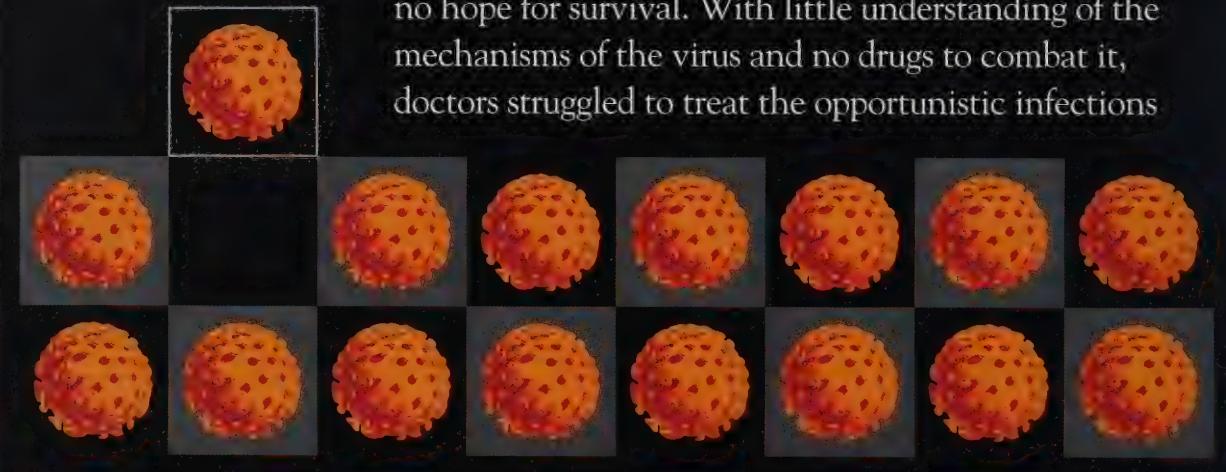


**HIV-**

## *The Search for Answers Continues*

By Charles Bila

Eighteen years ago, when the cause of AIDS was first identified by scientists, a person diagnosed with the human immunodeficiency virus, or HIV, had almost no hope for survival. With little understanding of the mechanisms of the virus and no drugs to combat it, doctors struggled to treat the opportunistic infections



Photography by Andrew Campbell



Dormant HIV poses a serious challenge to doctors and researchers.

that resulted from the virus's assault on the immune system. More often than not, they failed and the patient died.

Since then, research has paved the way for a better understanding of the virus and how to treat it, and today those with HIV are living longer and healthier lives with the help of new drugs. But those drugs, which aim to disable the virus, are far from perfect, and researchers continue to seek out different ways to treat the disease.

### A revolution in treatment

Until November 1995, there were only four FDA-approved drugs available to combat HIV. Today, that number has more than tripled. This dramatic increase in treatment options is largely due to the introduction of a new class of drugs called protease inhibitors in 1996. These drugs revolutionized the treatment of HIV. "When protease inhibitors became widely available, the whole ball game changed," says Beverly Sha, MD, medical director of Rush's Mark Weiss Memorial Outpatient Clinic for Infectious Diseases.

What changed the game was that doctors now had three classes of drugs to fight off the virus. By giving a patient three or more drugs at the same time, or a "cocktail," doctors can attack the virus

from a variety of angles. In doing this, they increase the chances of stopping viral replication. And by controlling the virus, they are preserving the immune system from further damage and preventing deadly opportunistic infections, such as a particularly virulent form of pneumonia.

"We have patients who are on these drugs and they are in better shape today than when they started the drugs. Some were on disability and have gone back to work, and there are some patients who I'm very sure would be dead if not for these drugs," Sha says.

Paul Bowles tested positive for HIV more than nine years ago. Since then, he has been prescribed a variety of drugs, many of which have made him sicker than the HIV itself. "I was hospitalized three times for drug toxicities," he says. "My kidneys failed, and I was days away from having to go on dialysis."

But Bowles managed to bounce back with the help of protease inhibitors. Although he still must deal with side effects, Bowles stays active and optimistic. He works part-time reviewing documents for research studies at Rush and full-time at maintaining his health.

"I got to the point three years ago when I couldn't even walk," he says. "The



Infectious disease specialist Harold A. Kessler, MD (left), is evaluating the effectiveness of new drugs to treat patients with HIV.

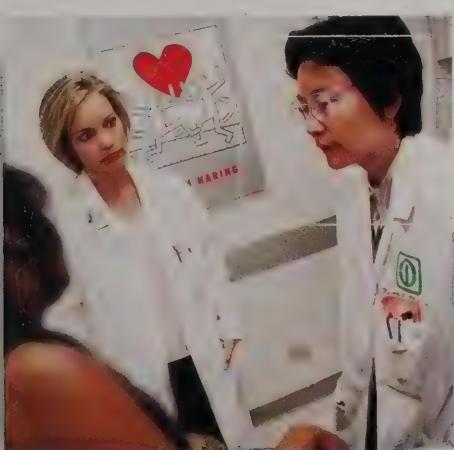
We have patients who are on these drugs and they are in better shape today than when they started the drugs.

nerves in the bottom of my feet felt like raw wires. Now, even with side effects, I can play sports."

### Addressing the downside of recent innovations

With more drugs, doctors have more options. This is important because HIV often becomes resistant to certain drugs, forcing doctors to adjust the patient's medications. But because there are only so many effective drugs available today, a patient may run out of alternatives. "It becomes difficult when a patient has failed his or her third, fourth or fifth regimen because we don't have enough drugs yet. That's why it's important that the research continues so patients have more options," says Laurie Proia, MD, an infectious disease treatment specialist at Rush.

And even when drugs are working, they come with their fair share of problems. Side effects such as diarrhea, uneven fat distribution and skin rashes make the drugs hard to tolerate, and complicated regimens make it difficult for patients to follow doctors' orders. Some patients must take 15, sometimes 20, pills a day — not all at once but at regular intervals throughout the day. "As anyone who has had to take an antibiotic



Until November 1995, there were only four FDA-approved drugs available to combat HIV. Today, that number has more than tripled.

Beverly Sha, MD (right), and Allison Truckenbrod, a physician's assistant (left), discuss treatment options with a patient.

for a sinus infection knows, it's easy to forget to take one's medications, even if it's just a couple pills a day," Sha says.

When patients fail to take their medications as prescribed — whether it's because the drugs make them sick or simply because they forget or can't keep track — the virus has a greater chance of becoming resistant to the drugs. In fact, many experts believe that the reason most patients don't respond well to drug therapy has more to do with adherence problems than with the drugs themselves, Sha says.

For these reasons, researchers at Rush and other institutions are looking at ways to simplify the drug regimens and increase the number of treatment options by trying new combinations, varying levels of doses and exploring new approaches such as vaccines and immune-based therapies. Rush is one of 16 medical centers in the United States, and the only one in Chicago, involved in a study of a new protease inhibitor. The drug appears to fight many of the resistant strains of HIV. And the good news for those who must struggle with strict multiple-drug regimens — it needs to be taken just once a day.

At the same time, researchers are looking closely at the side effects of the drugs, some of which have yet to be seen. "Nobody has been on the protease inhibitors for more than four years. We've only recently begun to see some of the very difficult long-term side effects from this class of drug, and we're sure there are more to come," says Kimberly Smith, MD, an infectious disease specialist at Rush.

To evaluate the possibility of an increased risk of heart disease in HIV-infected patients taking these drugs, Rush

researchers are using a new technology called a heart scan to determine if there are early signs of heart disease in this group. Since this highly sensitive scan detects the build-up of plaque in the arteries long before patients show symptoms, researchers believe it will be useful in tracing changes that might be caused by the drugs.

### Treatments of the future

So far, FDA-approved drugs for HIV include only those that fight the virus itself. These drugs only partially repair the immune system already damaged by the virus and may not completely boost the immune system's ability to fight off infection and disease. To address this, researchers are studying compounds that can stimulate the immune system. The hope is that eventually existing drugs and immune therapies can work in tandem to fight HIV infection. "The immune therapy approach to treating HIV looks to rejuvenate the body's natural defense system and allow it to better fight the dormant virus," Sha says.

### The sleeping virus

Dormant HIV, which can hide in organs and tissues of the body for years before becoming active, poses a serious challenge to doctors and researchers.

"Eliminating HIV is difficult because the virus hides in reservoirs of the body, such as the brain, where medications cannot reach effectively," says Harold A. Kessler, MD, associate director of the Rush Section of Infectious Diseases. "We can eradicate reproducing HIV up to a point, but not the latent virus in these cells."



Infectious disease specialist Kimberly Smith, MD, gathers blood samples.

Researchers are studying compounds that can stimulate the immune system. The hope is that eventually existing drugs and immune therapies can work in tandem to fight HIV infection.

Scientists are investigating treatment strategies that will wake the sleeping virus, giving existing anti-HIV drugs a better chance to recognize and destroy the once dormant virus.

### Disease management vs. cure

Although there are many new treatments on the horizon, few clinicians and researchers are using the word *cure*, Proia says. At the beginning of the AIDS epidemic in 1981, many medical experts projected a cure before the turn of the century. Recently, the world welcomed the new century and still no cure had been found. "That's not to say we won't get there, but we still have a lot to learn," Proia says.

In a relatively short period, though, significant advances in treatment have been made and new avenues of opportunity have been opened, giving those with HIV more time. "Although a true cure may not be within reach today, we may get to the point in the near future where we can control HIV just as we can control high blood pressure and diabetes," Sha says. ■

I got to the point three years ago when I couldn't even walk... The nerves in the bottom of my feet felt like raw wires. Now, even with side effects, I can play sports.



Although HIV positive, Paul Bowles continues to lead an active life.



# RushMD

The Alumni Association of Rush Medical College

Rush Medical College

Winter 2000

## Service program links students with community

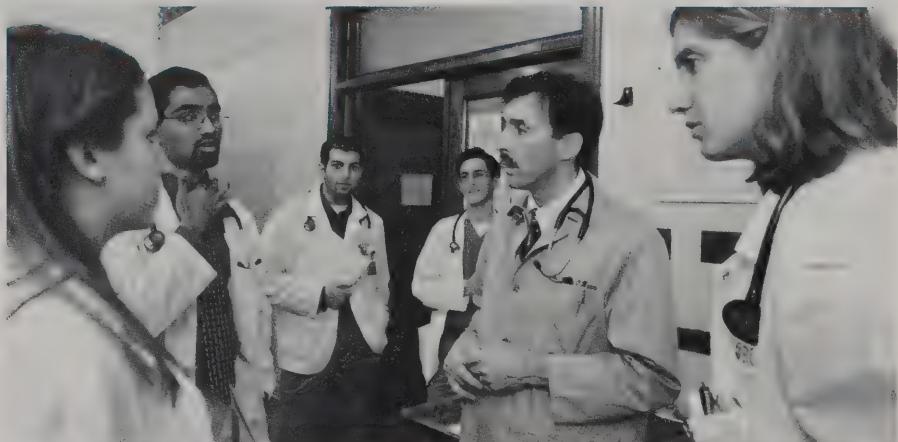
by Jill Waite

For the Garcia family, it's that time of year — time to get their annual physical exams. But like an estimated 43 million other Americans, Raquel Garcia and her two small children have no medical insurance.

For many uninsured people, a routine physical exam is a luxury they cannot afford. But thanks to the CommunityHealth Clinic on Chicago's West Side, free primary and preventive care services are available to those who cannot access private insurance coverage or government assistance programs like Medicaid or Medicare.

CommunityHealth does not charge for its services, and the clinic is funded by contributions from individuals, foundations, corporations and other organizations.

More than 300 doctors, nurses and other health care and community volunteers help to staff the clinic, which serves uninsured working peo-



Attending physician John O'Brien, MD, discusses a case with students at the CommunityHealth clinic.

ple and families, new immigrants and the self-employed. Among these volunteers are Rush faculty, residents, nursing students, health systems management graduate students and medical students like Melissa Simon.

Before coming to Rush University, fourth-year medical student Simon had a clear vision of what she wanted to accomplish during her time here. "I knew that I wanted to participate in community service," she says.

*"I enjoy just watching my patients progress and get better," says Melissa Simon, fourth-year medical student and CommunityHealth volunteer.*

The Rush Community Service Initiative Program (RCSIP), which has created a network of programs that match student initiative with the social and health needs of Chicago residents, offered Simon exactly what she wanted. As part of the RCSIP, Simon signed on as volunteer at CommunityHealth during her first year of medical school.

Equipped with a fluency in Spanish and a strong desire to help the Latino community, Simon began her work at CommunityHealth as a translator. Now, one night a week she joins 10 to 15 other Rush medical students at CommunityHealth where, under the close supervision of an attending physician, they help provide everything from routine physical exams to laboratory tests

**continued on page 4**

# Federal government green lights Rush human subject research efforts

by Sean Carr

**O**n Aug. 31, Rush's Office of Research Affairs learned that the Medical Center was free of all the conditions placed on its human subject research. This news came only 10 months after the federal Office for Protection from Research Risks (OPRR) reinstated Rush's ability to conduct human subject research following a five-day suspension in October 1998.

"If you look around at other institutions that have been laboring under this difficulty," says David Clark, PhD, director of research affairs and assistant vice president for research, "none of them have received the OPRR's blessing and been released in 10 months. This really is a standout accomplishment."

Indeed, the OPRR's director has cited Rush's efforts as a "national benchmark" — a commendation that comes after months of hard work. To review the 1,500 human subject studies active at Rush, three additional Institutional Review Boards — the groups responsible for ensuring that research is safe for patient participation — were created, two temporary and one permanent.

To coordinate that review and to manage Rush's growing research program, the Research Affairs staff has grown from five to 16. The office also created a comprehensive program to educate the Rush research community about the guidelines governing human subject protection.

"To say they worked long hours does not even begin to explain it," says Larry Goodman, MD, senior vice president for medical affairs. "They were working 15 or 16 hours a day, seven days a week."

Now Research Affairs has moved beyond that initial response — what Clark calls Phase I — and into Phase II: streamlining.

An increasingly thorough screening



David Clark, PhD

process for all new human research protocols will help investigators anticipate the concerns of the Institutional Review Boards and expedite study approval.

The Office of Research Affairs is also speeding up review of licensing, patenting and other legal agreements that are part of many studies. In time, online updates will help investigators monitor a project's progress through both of these review processes.

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*"If you look around at other institutions that have been laboring under this difficulty," says Clark, "none of them have received the OPRR's blessing and been released in 10 months. This really is a standout accomplishment."*

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Clark is particularly excited about Rush's new subscription to the Community of Science, a Web-based network of scientists and funding opportunities. In use at most of the world's top research universities, it gives Rush faculty the opportunity to include their publication histories and research inter-

ests in an online database and, in turn, gives them access to the same information about other scientists at Rush, in Illinois and around the world.

Community of Science also offers the most comprehensive listing of state, federal, industry and foundation research funds now available, including weekly e-mail messages — or "funding alerts" — tailored to each researcher's specific area of interest.

In the future, Clark says, Rush researchers will be able to visit the Rush Intranet and fill out everything from research affairs paperwork to federal grant applications and submit it all with the push of a button.

In the meantime, Research Affairs and the Institutional Review Boards are preparing for the next wave of study reviews. Federal guidelines require that all human research studies be reviewed at least once a year, and the hundreds of Rush studies reviewed last January, February and March will be due for review in the next few months.

"We will distribute those reviews over time so that they don't all come due after the new year," Clark says. "We're actively gearing up and doing some of them now to get ahead of the game."

He reminds Rush researchers that they can get ahead of the game as well. Since attendance at the latest workshop on human research guidelines is required for study re-approval, primary investigators can avoid any last-minute problems by taking the course now. Clark is quick to thank the researchers for all of their cooperation and encouragement over the past year.

"Some of them," he says, "made a point of popping into the office to say something heartfelt about how they appreciated the work we were doing. That was such a shot in the arm." ■

# Internet's role grows at Rush and beyond

Erich E. Brueschke, MD, The Henry P. Russe, MD, Dean of Rush Medical College

**A**s we begin the year 2000, the role of the Internet continues to expand in our world.

At Rush Medical College, [www.rushu.rush.edu](http://www.rushu.rush.edu), we strive to find new ways to use the World Wide Web in our classrooms and beyond. Communication among our professors, staff and students is growing, particularly through the Intranet and e-mail.

Here are a few ways that the college is planning to make use of the Web and other digital tools:

- Setting up public folders, accessible on the Intranet. Each class would offer a syllabus, along with lectures online. This gives our students the flexibility that they want. With lectures on-line, students can read the material before coming to class or easily review it afterward.
- Students complete course evaluations on the Rush Intranet, which will make the evaluation process work more smoothly.
- Schedule courses via the Web.
- The Medical College regularly uses e-mail to communicate among its staff, as well as with its students. Students regularly receive e-mail about upcoming activities, grants and fellowships.
- Staff and students are part of many internal and external e-mail listserves. These open up the lines of communication between Rush and many other medical centers through-

out the United States and the world.

• Students now apply for many residency programs nationwide through ERAS, Electronic Residency Application Process. This exciting tool makes what could be a tedious application process much more efficient for both the student and the institution.

• The Rush Medical College web site is in the process of being updated. Expect a new, exciting look soon at [www.rushu.rush.edu](http://www.rushu.rush.edu). The Medical Center website was recently overhauled. Check it out at [www.rush.edu](http://www.rush.edu).

In addition, Rush Medical College's Office of Medical Student Programs, the Library of Rush University and the Center for Advanced Technology is considering a partnership with Lippincott, Williams and Wilkins, a publisher of medical, nursing and allied health information.

By working with this outside group, Rush could create more opportunities for its students — by exposing them to electronic educational products such as CD-ROMs that can be tailored to Rush's specific coursework.

## FACULTY DEVELOPMENT

We are forging new paths on another exciting front — the path to helping our faculty members continually develop as teachers.

Medical education is a lifelong learning experience. To discover and plan new educational opportunities for our faculty, a Faculty Development Task Force met periodically in 1999.



**Erich E. Brueschke, MD**

They will be implementing their plans in the spring of 2000.

Another event planned for the spring is the dedication of the new Robert H. and Terri Cohn Research Building. A date has not yet been set, but a faculty planning committee is working on choosing a keynote speaker.

The new building is coming at an exciting time in research at Rush. Our research efforts are up nearly 12 percent compared to last year.

The National Institutes of Health fund about 66 percent of projects. Other public health service funding pays for 8 percent, and 1 percent comes from other federal agencies, bringing our total federal research to 75 percent.

This is certainly something to be proud of. Continue to watch our research efforts and our Internet site for exciting results.

**continued on page 7**

# Alumni Association looks to the future

By Paul Jones, MD, alumni president

As doctors, we continually strive to improve and build upon the knowledge and skills we first acquired at Rush. But as alumni we are often content to live in the past, basking in memories of all-nighters.

During my two years as president of the Rush Medical College Alumni Association, I would like to focus on the future — on the future of Rush's students and on the future of alumni communication.

In the 1970s, shortly after Rush Medical College was reactivated, the typical medical student graduated with a debt of \$6,323. Today's Rush graduate faces a debt of \$112,000. That's a staggering figure, but it's not just the numbers that should concern us. It's the effect they will have on the Rush student body of tomorrow.

For several years now, I have been guiding applicants through the Rush admissions process, and it seems to me that many students — students who would clearly excel at Rush — have chosen other schools solely on the basis of financial aid. That's a decision all of us can relate to.

Understanding as we do the pressures of medical school, I think all of us can sympathize with a student's desire to minimize his or her future financial burden. Right now, we continue to attract excellent candidates, but if this trend continues we may soon find ourselves attracting only those who can afford Rush—not the students who deserve Rush and whom Rush deserves.

Because this problem isn't going to get any better — at least not in the foreseeable future — I intend to devote my time in this office to putting together a plan that will have a long-term impact on student debt at Rush.

During his term as Alumni Association president, Harold Kessler

MD, '74, set up an interest-bearing account that allowed the Association to operate using the interest generated from alumni contributions. Over time, Dr. Kessler intended that money to begin funding scholarships at Rush. During the next two years, I will work to complete that vision.

It will be my goal as president to increase the number of Alumni donors, to raise the level of overall Alumni contributions and to see that more and more of our contributions are designated for medical student scholarships. That can be our gift not only to the future of medical education at Rush but to the future of medicine.

We certainly have more than just financial support to offer today's students. Many of us enjoy meeting with and advising students, and this alumni-student networking has traditionally been one of the Alumni Association's most popular and effective initiatives.

Yet networking among alumni — keeping in contact with one another and maintaining those bonds we made during four pretty tough years — hasn't always been so easy. Now, with the advent of the Internet, the opportunity for alumni to stay in touch with one another has never been greater.

**continued on page 15**



**Paul Jones, MD**

## CommunityHealth

**continued from page 1**

to immunizations.

In the clinic's hands-on learning environment, students are given progressive responsibilities. First- and second-year medical students triage and interview patients; perform laboratory procedures, such as pregnancy tests and urinalyses; and observe examinations and treatment.

Third- and fourth-year students not only examine patients, they also offer possible diagnoses and recommend treatment plans under the guidance of the attendings.

During their years at CommunityHealth, students have the chance to provide a continuum of care to patients. Simon, who has worked as a student steering committee member, or student leader, since her first year, has developed ongoing relationships with her patients. "I enjoy just watching my patients progress and get better. I've had several chronic diabetic patients who I've seen improve over the past three years," she says.

Students also have the chance to observe the many doctors and nurses who volunteer their time to help patients and teach students. "They make me feel that I'm in health care for a reason," Simon says.

With nearly 11,000 free patient visits in 1999, the demand for CommunityHealth's services far exceeded its space. So in December 1999, the clinic moved to a new building. Still close to the Rush campus, the new location has additional exam and counseling rooms and a patient-friendly atmosphere.

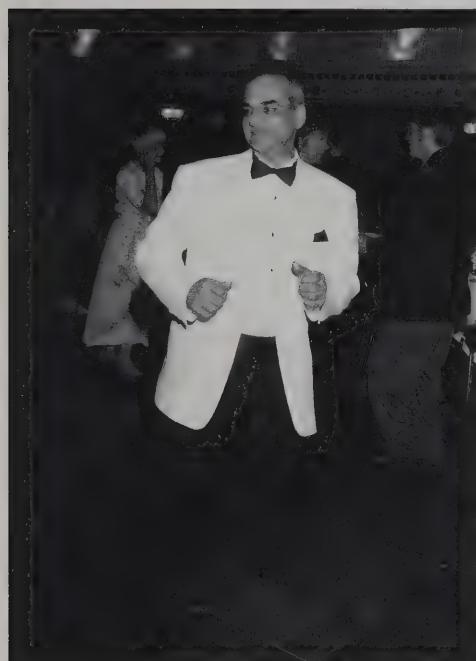
With this change, more families like the Garcias can take advantage of CommunityHealth's services. And with more patients to treat, students like Melissa Simon have greater opportunities to serve the community while they learn.

If you would like to be part of this service and teaching experience, or would like to help CommunityHealth meet the needs of the uninsured, contact the RCSIP office at (312) 942-8116. ■

# Alumni weekend: a reunion to remember

by Jill Waite

**G**ood times and good friends kept Rush alums busy during alumni weekend festivities, June 10-12, whether they were cutting a rug at the alumni banquet at the Hotel Inter-Continental Chicago, dining at Sopraffina or knocking down pins at the Southport Lanes & Billiards on the North Side. While other Rush alums gathered throughout Chicago to reunite and reminisce, the classes of '74 and '79 enjoyed a special celebration at Rush University's Robert W. Sessions House. There they joined Rush CEO and president, Leo M. Henikoff, MD, and his wife, Carole, in commemorating their 25th and 30th year reunions. Rush University looks forward to another fun-filled alumni weekend on June 8-10, 2000.



Brad Bernardini, MD, '99, (above, standing) is the first student of the second generation to graduate from the reactivated Rush Medical College. His father, Joseph P. Bernardini, MD (left), a member of the class of '75, boogies down at the Alumni Banquet.

Right: Myron Cohen, MD, '74, is presented with the 1999 Rush Medical College Distinguished Alumnus award by Stuart Levin, MD, chairman of the Department of Internal Medicine. The award is given annually to an outstanding Rush graduate who brings distinction to both the College and the field of medicine.



Left: Class of '89 members Elaine Carroll (left) and Loretto Ann Glynn enjoy the festivities at the Alumni Banquet.

Right: Larry Goodman, MD, senior vice president of medical affairs, glides across the dance floor with his wife, Michelle. On January 1, Goodman was named acting dean of Rush Medical College.



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## Alumni Weekend

continued from page 5



Clockwise from top right: Class of '94 grads share a few laughs during Alumni Weekend. The evening is young for Richard Hart, MD, and his wife, Pat. Alexander Hilkovich, MD, '41. Drs. Russ and Joan Zajtchuk — the Fred and Ginger of Rush. Alumnus George Handy, MD, '42, takes his wife, Karen, for a whirl.



Class of '74 members Harold A. Kessler, MD, Myron Cohen, MD, Richard Hart, MD, and Leonard Weather, MD.



The class of '89 gathering at Sopraffina featured food, fun and fond memories.

## Dean's Column

continued from page 3

### Parting Words

This is my last column as dean of Rush Medical College. Effective January 6, I assumed a new role as vice president for university affairs at Rush University.

This position will allow the university to strengthen external academic relationships with the various constituencies and organizations associated with Rush University, from the Association of American Medical Colleges to the North Central Association of Colleges and Schools. In this role, I will be helping to position Rush on the national scene of health sciences education.

I thank you for your support during my tenure as dean, and I look forward to continued association with our alumni in my new position.

I am pleased to announce that Larry Goodman, MD, senior vice president for medical affairs at Rush, has been named acting dean of Rush Medical College.

As most of you know, Dr. Goodman, who has been at Rush since his residency in 1976, was associate dean for medical student programs at the Medical College from 1987 to 1996.

Best of luck to Dr. Goodman in his new role and to our students in their continued pursuit of academic excellence. ■

Save the  
Date

## Alumni Weekend 2000

June 8-10, 2000

Special reunion activities for the classes of  
1940, 1975, 1980, 1990 and 1995.

Watch your mail for more information.

# Honor roll of donors

This honor roll of donors includes all Rush Medical College alumni who made gifts to Rush-Presbyterian-St. Luke's Medical Center in the past fiscal year (July 1, 1998, to June 30, 1999).

We have made every attempt to list all names and class years accurately. Please contact Marva Starks, Alumni Relations, at (312) 942-7227 if there are any corrections.

## Classes of '29 - '33

Alice Mary Hunter, MD, Foundation  
**Estate of Alexander Wolf, MD**  
Tom D. Paul, MD  
Estate of Samuel G. Taylor III, MD\*  
Edward Howard Wagenaar, MD  
Noah Barysh, MD  
Estate of Irving Benveniste, MD\*  
Clarence W Monroe, MD\*

## Class of '35

A. Stone Freedberg, MD  
Alan P. Freedberg, MD  
Durward G. Hall, MD\*  
H. Sidney Heersma, MD\*  
Kate H. Kohn, MD  
Irving E. Slott, MD

## Class of '36

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Estate of Juliette M. Eliscu, MD  
Samuel I. Greenberg, MD  
Edwin H. Lennette, MD  
Estate of Joseph Silverstein, MD  
Joseph Robert Stone, MD  
Jerome H. Tucker, MD  
Louis R. Wasserman, MD

## Class of '37

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Verrill J. Fischer, MD  
Mayer Hyman, MD  
**Harold Laufman, MD\***  
Emanuel C. Liss, MD  
John A. Nelson, MD  
Thomas Andrew Slate, MD  
Philip J. Stein, MD

James David Stratton, MD  
Bert J. Vos, MD

## Class of '38

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J. Will Fleming, MD\*  
Ralph Friedlander, MD  
Louis Linn, MD  
William Hall Orcutt, MD  
Eric E. Simonson, MD  
Tetsui Watanabe, MD

## Class of '39

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James Webb Chambers, MD  
Robert Brown B. Henry, MD  
H. Kermit Knoch, MD  
Vern Lauer Zech, MD

## Class of '40

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Ryland Marcus Jacobus, MD\*  
Edward Lawrence Laden, MD  
Eugene Bowles McGregor, MD  
Irvin S. Siglin, MD  
Burns Charles Steele, MD  
Roy T. Tanoue, MD\*  
Benjamin Ernest Tuch, MD  
**Richard C. Vanderhoof, MD**  
John Allen Watson, MD

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Harold A. Bjork, MD  
Irving Eugene Brown, MD  
M. Wesley Farr, MD  
Alexander Hilkevitch, MD  
Loren Joseph Larsen, MD  
John William Pace, MD  
Leibert J. Sandars, MD  
Blake Strother Talbot, MD

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Joseph T. Crockett, MD  
Charles F. Downing, MD  
**George Harmon Handy, MD\***  
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Royal Ernest Ihrke, MD  
Robert E. Kirkman, MD

Isaac Eldrew Michael, MD  
Vera Morkovin, MD  
Milton E. Nugent, MD  
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Jerome Waldman, MD  
Frederick S. Webster, MD

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Michael J. Cwynar, MD  
Mark Lurie, MD\*  
**Floyd F. Shewmake, MD**  
Glen E. Sutherland, MD\*

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John A. Campbell, MD  
Ephraim S. Casper, MD  
John J. Garvie, MD\*  
Richard W. Hart, MD  
**Harold A. Kessler, MD\***  
Walter E. Meyer, MD\*  
Stephen Paul Montgomery, MD\*  
**Ronald D. Nelson, MD\***  
Jack C. Nichols, MD  
David A. Sperling, MD

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Dino S. Delicata, MD\*  
Martin Faber, MD  
**Glen O. Gabbard, MD\***  
**Steven Gitelis, MD\***  
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Michael Gold, MD  
William F. Graettinger, MD  
J. Brian Hancock, MD  
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Harold Sand, MD  
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Timothy C. Payne, MD

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Daniel Jay Smith, MD

James Edward Swanson, MD

**April Harlynn Teitelbaum, MD\***

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Gary Waldman, MD\*

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James A. Simon, MD

Donald Skor, MD

William Totoriello, MD

Myron Wojtowycz, MD

Fuk Chun Alan Wong, MD\*

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James Philip Conterato, MD

**Thomas A. Deutsch, MD\***

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Irene R. Japha, MD

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Lisbeth M. Lazaron, MD

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Kathryn H. Mulligan, MD\*

Ronald E. Pepitone, MD

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Stephen M. Smith, MD  
**Wendy Stock, MD**  
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Jonathan Samuel Cohen, MD  
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John Ernest Hipskind, MD  
Paul Anthony Karazija, MD  
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Frederic Evan Levy, MD  
Jeffrey Mark Lisowski, MD  
Suzanne McMannis, MD  
**Mary Lou Meengs, MD**  
Nicholas Recchia, MD  
Maureen Seeley Richards, MD  
Gary Edward Waters, MD  
Susan Wilcoski, MD  
Steven Clement Yuill, MD

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Donald Scot Childs, MD  
John Joseph Cudecki, MD  
Dean Allen Delmastro, MD  
**Maureen Shea Holland, MD**  
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Daniel Scott Lazar, MD  
David Joseph Powers, MD  
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Toby Renee Sadkin, MD  
Valerie C. Walker, MD  
Nanajan Yakoub, MD  
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Michael Martirano, MD  
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Frank Gerard Ondrey, MD  
Michael A. Perlin, MD  
Diane S. Ruschke, MD  
Paul A. Sauer, MD  
Amy Louise Stoeffler, MD  
Maria V. Swastek, MD  
Elaine Lee Wade, MD  
Anne Lyall Wyman, MD

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George Kovacevic, MD  
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Marc C. Sandrolini, MD

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Laura Polakovic-McNeill, MD  
Michael Jay Rosen, MD

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Trudie Muir, MD

**Class of '93**

Mark Andrew Brown, MD  
Jennifer Plotkin, MD  
Fred J. Rothenberger, MD

**Class of '94**

**Liza Pilch, MD\***  
Desiree Soter, MD  
**Christine Ward, MD**

**Class of '95**

Karen Imperio Relucio, MD

\* Denotes members of the  
Benjamin Rush Society  
**Bold** Denotes alumni volunteers



# Class Notes

On the following pages, Rush Medical College alumni from around the globe share their professional and personal achievements. To let your classmates learn what you've been up to, fill out the "What's New With You?" card inserted into this issue or write: the Alumni Association of Rush Medical College, 1700 W. Van Buren St., Suite 250, Chicago, IL 60612. Or send e-mail to: [MaryPat\\_Mauro@rush.edu](mailto:MaryPat_Mauro@rush.edu)

## 1920s

ESTHER (ZISKIND) SOMERFELD, MD '25, of Los Angeles recently celebrated her 98th birthday. She still keeps a busy schedule of attending hospital meetings, writing peer reviews and seeing the occasional patient.

## 1930s

ALLAN A. FILEK, MD '33, of Sun City, Ariz., retired from public health and preventive medicine. He acts in a theatrical group in his retirement center, Heritage Palmers. Some of the characters he has played include Santa and God.

WILLIAM L. CURTIS, MD '35, of Mercer Island, Wash., is 91 and a retired radiologist.

DURWARD G. HALL, MD '35, of St. Petersburg, Fla., is a retired surgeon and president of the resident board at the Senior Living Centers of College Harbor Retirement Center at Eckford College. He stays active playing golf in the Academy of Senior Professionals, Eckford College.



## 1999 White Coat Ceremony

During this rite of passage, Medical College dean Erich E. Brueschke, MD, presented white coats to the 119 members of the Class of 2003 — including his daughter Tina (above). The freshman class is a diverse group, ranging in age from 19 to 46 and representing 52 colleges and universities throughout the United States and Canada.

CONRAD J. HOLMBERG, MD '35, of Sun City West, Ariz., retired from otolaryngology in 1979.

ROBERT LEVY, MD '35, of Chicago is now retired, loafing and relishing pleasant memories.

IRVING E. SLOTT, MD '35, of Chicago stays active as a medical expert for the Social Security Agency of Health and Human Services.

SAMUEL I. GREENBERG, MD '36, of Gainesville, Fla., wrote a book, "Introduction to the Technique of Psychotherapy," that was published in 1998.

ALAN A. LIEBERMAN, MD '36, of Elgin, Ill., has been enjoying retire-

ment from private practice in psychiatry since 1979.

VERIILL J. FISCHER, MD '37, of Fargo, N.D., retired from family practice and surgical medicine in 1984. He taught a family medicine residency program in Minot, N.D., until Oct. 1997.

FREDERICK A. SCHURMEIER, MD '39, of Elgin, Ill., divides his retirement between homes in two cities, Elgin, Ill., and Green Valley, Ariz.

## 1940s

L.J. (LEE) SANDARS, MD '41, of Reno, Nev., retired from radiology in 1988. He enjoys reading, painting, golfing and visiting with friends.

*continued on page 12*



**Fits like a surgical glove! One of Rush Medical College's newest freshmen shows off his white coat as Erich E. Brueschke, MD, looks on.**

**continued from page 9**

BLAKE S. TALBOT, MD '41, of San Diego is still going strong at 83. He walks frequently, goes to the gym and enjoys living in one of America's greatest cities. From May to June, 1999, he toured the capitals of eastern and central Europe. "There's a great rebirth going on in those cities," he says.

ELWIN P. SCOTT, MD '42, of Sun City, Ariz., retired from general practice and surgery in 1986. He enjoys reading, golf and bridge. From May to Oct., he spends time at his summer home in Webster Groves, Mo.

GEORGE H. LOWE JR., MD '43, of Ogden, Utah, has been married to his wife Beth for 56 years. They have 31 grandchildren and enjoy whitewater rafting on the Colorado River and hiking in the Mt. Everest area.

JOHN E. CANN, MD '44, of San Rafael, Calif., retired from anesthesiology in 1986.

Victoria Humanist Society.

#### **1980s**

RICHARD C. BERGLAND, MD '80, of Bloomington, Ill., recently moved from the Northwestern Chicago suburbs. He looks forward to his class reunion in 2000.

ROB GILLIO, MD '80, of Lancaster, Penn., is busy raising four daughters. He is reducing his practice in pulmonary medicine to spend more time on computers in medicine and telemedicine activities.

BETH PLETCHER, MD '82, of Chester, NJ, is busy raising two children, Brett, 9; and Brittany, 4. She has been involved with grant-funded educational programs for primary care providers on genetics. To learn more about her work, check out the web site [www.genesatwork.org](http://www.genesatwork.org)

STANLY P. MAXIMOVICH, MD '83, of Hinsdale, Ill., has written a new book, "101 Ways to Feel and Look Great! A Plastic Surgeon's Guide to Improve Your Life From the Inside Out." It can be viewed at his website [www.drstan.com](http://www.drstan.com).

SIGMUND J. KHARASCH, MD '85, of Newton, Mass., practices pediatric emergency medicine. He and his wife, Virginia, are the proud parents of twins, Gregory and Eleanor, 1; and their eldest son Manny, 3.

JOHN A. LARSON, MD '86, of San Angelo, Tex., completed his anesthesia residency at University of Tennessee, Knoxville. He moved to San Angelo to become a staff anesthesiologist at Shannon Medical Center.

MARY MILANO, MD '86, of Kenilworth, Ill., is a part-time pathologist in a Chicago suburb. She and

ERNEST W. FEILER, MD '48, of Lafayette, Col., is married with three children and four grandchildren. He retired from trauma medicine in 1989 but is designing instruments for surgery.

MICHAEL J. HEALY, MD '48, of Frisco, Tex., is still practicing medicine. His youngest daughter is a junior at Trinity Christian Academy High School. He wishes the best to his friends and family.

#### **1950s**

PIERRE F. SALGANO, MD '53, of Richmond, Calif., is a pediatrician in private practice as well as an attending physician at Oakland Pediatric Medical Center.

#### **1960s**

ELIAS MANDEL, MD '61, of Victoria, British Columbia, is a retired pediatrician. He takes music classes at the University of Victoria. He is the former governor of Rotary International and president of

her husband Angelo stay busy by raising five children, ages 4 to 14.

#### 1990s

JEFFREY M. SMITH, MD '90, of San Diego became the chief of orthopedic acute/trauma service at the University of California, San Diego, in April 1997.

TIFFANY (TOM) CHOW, MD '92, of Los Angeles married her high school sweetheart, Wyndham, in 1998. She is a faculty member in the Department of Neurology at UCLA and the director of the Frontotemporal Dementia Clinic.

NANCY GRYNIEWICZ, MD '92, of Oak Park, Ill., practices family medicine with fellow alumnus Colleen Heniff, MD '93. She is the chair of family medicine at MacNeal Hospital in Chicago.

SUNANDA KANE, MD '93, of Chicago completed a fellowship in gastroenterology and has joined the faculty at the University of Chicago as an

assistant professor of clinical medicine in the Section of Gastroenterology.

RANDALL PORTER, MD '93, of Phoenix and his wife, Brook, are in the final year of their residency in neurological surgery. They have three children, Chrissy, 5; Drew, 4; and Reed, 1.

STEVEN SUN, MD '93; and LISA CONNIGHAN, MD '94, of Bellevue, Wash., are both in private practice in Seattle. He specializes in orthopedic surgery while she practices general OB/GYN. They have a two-year-old son.

ALAN MATSON, MD '94, of Chicago is currently a staff radiologist at Swedish Covenant Hospital in Chicago. They have four children, ages 9 to 16.

DANIEL A. NIKCEVICH, MD '95, of Durham, N.C., completed a residency in internal medicine at Duke and is in the first year of his hematology/oncology fellowship at Duke. He



and his wife, Kelly, have two daughters, Katherine and Elizabeth.

LORI SOSTOCK, MD '95, of Modesto, Calif., practices family medicine in a multispecialty group near San Francisco. She recently was elected as Stanislaus County Alternate Delegate to the CMA.

SHARON L. CLINE, MD '96, of Milwaukee recently completed her residency in internal medicine at the Medical College of Wisconsin. There, she is finishing a year as chief resident before beginning a fellowship in cardiology at Indiana University.

GREGG BASSETT, MD '98, of St. Louis, Mo., completed his fellowship in general and forensic psychiatry in 1998.

CHARLES M. CRAWFORD, MD '98, of Greenville, N.C., completed a residency in internal medicine and pediatric medicine at East Carolina University.



**The Class of 2003 is well-equipped for the rigors of Rush Medical College, having ranked above the national mean for MCAT scores in all areas.**



# Pediatric Residency Alumni

## 1930

H. SIDNEY HEERSMA, MD '37, of Kalamazoo, Mich., retired from general pediatric medicine in 1998 after 60 years in practice.

## 1950

DAVID F. EUBANK, MD '51, of Lee's Summit, Mo., retired from pediatric private practice in 1995.

## 1960

CHARLES A. LIMP, MD '66, of Bloomington, Ill., is a student health physician at Illinois State University Student Health Services in Normal, Ill.

A. DAVID ROTHNER, MD '67, of Cleveland is a pediatric neurologist at Cleveland Clinic.

SHARON BONDS, MD '69, of Decatur, Ill., is in private practice. She has two children.

## 1970

DON M. HOFFMAN, MD '70, of Elmhurst, Ill., is CEO of Elmhurst Clinic and a board member of Elmhurst Memorial Hospital. He has eight children.

DONALD W. DAY, MD '74, of Dallas specializes in medical genetics.

RICHARD BELKENGREN, MD '75, of Chicago is a general pediatrician and medical director of Misericordia South.

HOWARD NEEDELMAN, MD '76,

of Omaha, Neb., practices pediatric medicine at Children's Hospital.

RICHARD W. HART, MD '77, of St. Cloud, Minn., is a general pediatrician at St. Cloud Medical Group.

ELIZABETH MENDOZA-LEVY, MD '77, of Hollister, Calif., is director of Santa Clara County Health and Hospital System-San Martin Clinic. She enjoys gourmet cooking and photography.

KIM GAGE ROTHERMEL, MD '77, of Columbus, Ohio, is in private practice at Ohio Center for Pediatrics in Dublin, Ohio. She and her husband Bill have four sons.

MICHAEL GOLD, MD '78, of Camarillo, Calif., has been in private practice for 18 years. He currently works at Pleasant Valley Pediatric Medical Group.

NABIL SALEH, MD '79, of River Forest, Ill., is a general pediatrician in Westchester, Ill. She is vice president of the International Club for Physicians.

## 1980

ROBERT L. SPICER, MD '80, of Cincinnati is a pediatric cardiologist at Children's Hospital Medical Center.

JEFF LAZARUS, MD '81, of Shaker Heights, Ohio, is a general pediatrician in Beachwood, Ohio. He is married with two teenage daughters.

LESLIE TRUBOW, MD '81, of Northbrook, Ill., is a general pediatrician at Addison Park Pediatric Associates in Addison, Ill.

ANTHONY DEKKER, DO '82, of Glendale, Ariz., is associate director of the Phoenix Indian Medical Center.

JEFFREY E. FIREMAN, MD '83, of Deerfield, Ill., is a general pediatrician in Vernon Hills and Gurnee, Ill.

MICHAEL H. KOHNMAN, MD '83, of Gainesville, Fla., is a pediatric neurologist at the University of Florida.

DEMETRA K. SOTER, MD '83, of Chicago specializes in pediatric critical care, trauma and burn, at Cook County Hospital.

LALITHA PONNURU, MD '85, of Chesterfield, Mo., is a pediatrician in the emergency room at Christian Hospital in St. Louis. She also volunteers her medical services at a community center once a month.

LYNNE M. ELLIS, MD '87, of St. Petersburg, Fla., is in private pediatric practice. She and her husband of 17 years have three sons.

MARIANA GIGEA, MD '87, of Burr Ridge, Ill., is in pediatric private practice in Orland Park, Ill.

ANNU G. SHARMA, MD '87, of Irvine, Calif., is in private pediatric practice. She has traveled to Mexico with a volunteer medical organization to supply care.

SUSAN ROTH, MD '88, of Evanston, Ill., is in group pediatric practice.

LUIS F APARICIO, MD '89, of Erie, Penn., is a pediatric endocrinologist at Metabolic Disease Associates.

S. MARGARET PAIK, MD '89, of Chicago practices pediatric emergency medicine at the University of Chicago Hospital.

#### 1990

SHABNAM JAIN, MD '90, of Atlanta practices pediatric emergency medicine.

JANICE KRAKORA-LOEBY, MD '90, of Lake Forest, Ill., is in group practice in Vernon Hills, Ill. She recently completed the AIDS Ride and Avon Breast Cancer Walk.

LINDA LOPATA, MD '90, of Deerfield, Ill., is in private practice with four other pediatricians in Niles, Ill. She and her husband have four children.

MICHAEL G. CHEZ, MD '91, of Highland Park, Ill., is an assistant professor of neurology and pediatrics at Rush Medical College and a pediatric neurologist at Lake Forest Hospital.

MUMTAZ HUSAIN, MD '91, of Chicago practices emergency medicine at St. Joseph Hospital.

LISA J. MENZIES, MD '94, of Des Moines is a general pediatrician. She

won teacher of the year for pediatrics at Blank Children's Hospital in 1997. She is married with one child.

PAUL N. SEVERIN, MD '95, of Downers Grove, Ill., is a pediatric intensivist in Chicago. He is married with one son.

LISA TYBOR-JARACZOUSKI, MD '95, of Gurnee, Ill., practices in a multispecialty group at Evanston Northwestern Health Care in Vernon Hills, Ill.

VEDANG A. LONDHE, MD '98, of San Francisco is completing his fellowship in neonatology at the University of California-San Francisco.

MELANIE (SWIERSZ) MENIFF, MD '98, of Indianapolis practices pediatric emergency medicine at Methodist Hospital Emergency Medicine and Trauma Center. She is a flight physician for Lifeline Helicopter and has one daughter.

BETH SACHRISON, MD '98, of Tucson is in private practice. She is a black belt in Tae Kwon Do.

KIM SUN-BUM, MD '98, of Glenview, Ill., is a general pediatrician in Skokie.

AJAY K. GOPALKA, MD '99, of Chicago finished his residency at Rush in June.

## Alumni President's

### Column

**continued from page 4**

Rush recently unveiled a revamped web site at [www.rush.edu](http://www.rush.edu). In the coming months, I will be working with the Alumni Association staff and the Communications office to make the web page a useful tool for alumni to keep in touch with each other and to keep abreast of activities here at the College.

I will be proud to see those two initiatives — online communication and increased funding for student aid — up and running at the end of my two years. In the meantime, we have Reunion 2000 to tend to, and I look forward to welcoming many of you back to Rush in June. ■

## In Memoriam

### 1930s

ABRAHAM R. KORANSKY, MD '32, of Morton Grove, Ill., June 30, 1999.

S. GORDON CASTIGLIANO, MD '35, of Venice, Calif., Feb. 23, 1999.

JOSEPH F. KELLEY, MD '36, of Edmund, Okla., June 10, 1999.

ROBERT W. MANN, MD '36, of Mequon, Wisc., July 7, 1999.

LOUIS R. WASSERMAN, MD '36, of Newtown Conn., June 21, 1999. Distinguished Alumnus 1997

CHARLES D. KRAUSE, MD '39, of Highland Beach, Fla., Aug. 1997.

### 1950s

EMILE L. MEINE JR., MD '51, of Encino, Calif., Oct. 5, 1997.



A good time was had by all during Alumni Weekend 1999. We hope you can make it back this year.

# Alumni Calendar



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Please send your comments or suggestions to the editor at 1700 W. Van Buren, Ste. 250, Chicago, IL 60612; (312) 942-6564. Or e-mail [Judy\\_Grossman@rush.edu](mailto:Judy_Grossman@rush.edu).

## Editors

Judy Grossman  
Anne O'Reilly

## Production Editor

Judy Grossman

## Writers

Charles Bila  
Sean Carr  
Anne O'Reilly  
Jill Waite

## Photographers

Andrew Campbell  
Jean Clough  
Penny Lawrence  
Susan Richert

## Office of Alumni Relations

Mary Pat Mauro  
Director

Marva Starks  
Assistant Director

## Regular Meetings and Events

### Obstetrics and Gynecology

#### Grand Rounds

**Sponsor:** Rush Department of Obstetrics and Gynecology

**Speakers:** Various outside lecturers, as well as senior residents and fellows presenting Grand Rounds.

**Date & Time:** Every Thursday at 7 a.m.

**Location:** Rush-Presbyterian-St. Luke's Campus, A.B. Dick Auditorium

**Contact:** Yvonne Allen-Stewart at 312-942-6613

### Psychiatry Grand Rounds

**Sponsor:** Rush Department of Psychiatry

**Speakers:** Various

**Date & Time:** Second, third and fourth Wednesdays of each month (September through June)

**Location:** Rush-Presbyterian-St. Luke's Campus, A.B. Dick Auditorium

**Contact:** Howard M. Kravitz, DO, MPH, at 312-942-5372

## Special Lectures, Meetings and Other Events

### AMD-2K: Ophthalmic Update on Macular Degeneration

**Sponsor:** Rush Department of Ophthalmology/Optometry

**Date & Time:** March 11

**Location:** Rush-Presbyterian-St. Luke's Medical Center, Suite 976 AAF, Chicago

**Contact:** Roberta at 312-942-2302

### 1999 Board Review Course in Internal Medicine

**Sponsor:** Rush Department of Internal Medicine

**Date & Time:** June 19-25, 8 a.m. to 5:30 p.m.

**Location:** Hyatt Regency, Oak Brook, Ill.

**Contact:** Rae at 312-942-7095

### New Perspectives on Erectile Dysfunction Pri-Med Symposium

**Sponsor:** Rush Department of Urology

**Date & Time:** June 16-18, 11:45 a.m. to 1:15 p.m.

**Location:** Chicago

**Contact:** Anne Farrell, Current Medical Directions, Inc., New York at 212-771-7305

### Rush Medical College

#### Alumni Weekend

**Sponsor:** Alumni Association of Rush Medical College

**Dates:** June 8-10, 2000. See page 7 for details.

**Location:** Various sites at Rush and around Chicago

**Contact:** Marva Starks in Alumni Relations at 312-942-7227

### Specialty Review in Pediatrics

**Sponsor:** Rush Department of Pediatrics

**Date & Time:** July 1-10, 8 a.m. start

**Location:** Hyatt at University Village, Chicago

**Contact:** Rae at 312-942-7095

### Dermatology Review Course

**Sponsor:** Rush Department of Dermatology

**Dates:** Sept. 13-16

**Location:** Holiday Inn O'Hare, Rosemont, Ill.

**Contact:** Rae at 312-942-7095



Rush surgeons pioneer techniques in reconstructive surgery.

# Facing the World With Confidence

By Cheryl Janusz

The skull serves many purposes, practical as well as aesthetic. The thick cranium acts as a bony fortress, shielding the brain's delicate tissues from injury. Bone and cartilage that form the eye sockets, nasal passages and ear canals protect these organs and permit normal vision, hearing and breathing, while other bones in the face play essential roles in speaking, chewing and swallowing. Finally, the skull serves as a form of scaffolding — the framework for the face we put forth to the world.

## Physical problems with devastating emotional effects

A severe deformity of the bones of the skull and face can wreak havoc in all of these areas. As a result, children born with severe craniofacial defects face immense challenges — from the emotional impact of feeling different from others to the physical problems that often accompany such deformities. But thanks to medical and surgical advances, these children now benefit from better



Photography by Andrew Campbell

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treatments than ever before. Such advances include innovative techniques that more effectively restore normal facial appearance and relieve medical complications, such as breathing, hearing, vision and chewing problems, while at the same time limiting the need for repeated, complicated surgeries.

Danielle Smith, now 14, was born with a rare condition called Crouzon syndrome. Crouzon syndrome, named after the French surgeon who first described it in 1912, causes severe skull and facial deformities. "In Crouzon syndrome, the bones of the face and skull fuse too

canals can result in vision and hearing loss, and leave a child more vulnerable to dangerous eye and ear infections.

Deformities of the nasal passages and palate can create breathing, feeding and speech problems, and jaw-bone defects cause severe overcrowding of teeth. In extreme cases, the bones of the skull stop growing too soon, restricting brain development. And such physical complications add to the potentially devastating emotional effects of growing up with any type of deformity — the challenges of coping with appearing different from everyone else.

## A few decades ago, a child with Crouzon syndrome faced a lifetime of facial deformity and physical ailments.



soon, causing a shortage of facial bone," explains John W. Polley, MD, who co-directs the Rush Craniofacial Center.

Although Danielle's condition was not diagnosed until she was 3, her family knew something was wrong from the time she was born. Danielle's mother, Karen Smith, recalls that, as an infant, Danielle's face appeared sunken in — and her eyes seemed to protrude — hallmarks of Crouzon syndrome.

Because Crouzon syndrome affects bone growth, it tends to worsen as an infant gets older. "The bones of the skull and face don't grow at the same rate as the rest of the body, including organs such as the brain and eyes. This causes increasing deformity and

can create serious physical problems," adds Polley. Poorly formed eye sockets and ear

### New hope for children with Crouzon syndrome

A few decades ago, a child with Crouzon syndrome faced a lifetime of facial deformity and physical ailments. But at 14, Danielle is a normal teenager with little evidence of her condition. Her remarkable progress is due, in large part, to a series of surgeries and innovative treatments, performed at carefully planned stages of her growth and development by Polley and his colleagues.

Alvaro A. Figueroa, DDS, co-director of the Rush Craniofacial Center, is a dentist with extensive training in craniofacial anomalies and orthodontics. Under the leadership of Polley and Figueroa, the center offers a holistic treatment approach for children and adults with all forms of craniofacial deformities, with the goal of addressing all aspects of a patient's condition simultaneously — the deformity itself, along with its medical and emotional ramifications. Supplemental staff include professionals from fields such as neurosurgery, pediatrics, pediatric otolaryngology, speech and language pathology, nursing, dentistry, genetics and social work. These specialists work together to meet the unique needs of each patient and family.

To address the diverse problems of children with Crouzon syndrome and other craniofacial disorders, Polley and Figueroa develop long-term treatment plans, often beginning in infancy and continuing through early adulthood. Such plans often include anywhere from one to four facial surgeries.

### The long, hard road

Danielle underwent her first operation in 1992 at age 6. In this 16-hour surgery,

After a series of surgeries and innovative treatments performed by John W. Polley, MD (bottom right), and Alvaro A. Figueroa, DDS (bottom left), Danielle Smith (top), has a new face to put forth to the world.

Polley used pins, wires and grafted bone to carefully extend and reshape the bones around Danielle's eyes, nose and mouth.

Treatments are timed to offer the greatest benefits to the patient, says Figueroa. "Certain treatments are best done in infancy, when the craniofacial bones are thinner and more malleable," he explains. "Other procedures are best done in late adolescence, when full craniofacial growth has been attained."

Caregivers develop close relationships with patients and families, many of whom they treat for up to 20 years. "We watch these children grow up," says Figueroa.

Over the past 11 years, Danielle has seen Polley and Figueroa regularly for check-ups and treatments to correct various physical problems. Figueroa performed extensive dental work to straighten Danielle's teeth. She also received several years of speech therapy to help her learn to correctly articulate certain letter sounds.

This past summer, Danielle entered her final phase of care, undergoing a pioneering bone-lengthening treatment, developed by Polley and Figueroa, called distraction osteogenesis. "It's a technique we borrowed from orthopedic surgeons, who use a similar approach to lengthen bones in the leg," says Polley.

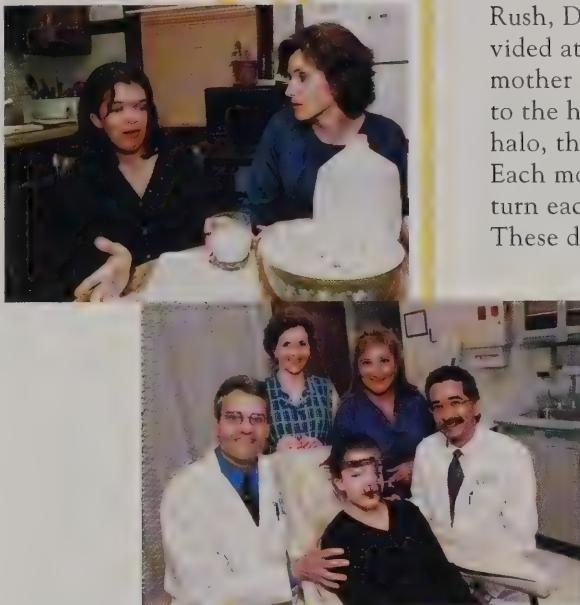
### The halo effect

First, Danielle underwent surgery in which Polley made small cuts in the key facial bones that required lengthening. Then, for six weeks, Danielle wore a specially designed cranial halo, similar to the one used by orthopedic surgeons to stabilize a patient's head and neck following spinal surgery. This semicircular device, which encircles the patient's head like the brim of a hat, is fixed with screws and wires to a patient's skull and teeth, providing a unique form of traction. As the screws and wires are gradually tightened, they progressively and, according to Danielle, painlessly pull the face forward, in much the same way as braces tighten teeth.

"When we make a cut in a facial bone, the body reacts as it would with any fracture — it begins to heal the cut by laying down new bone," explains Polley. "So as the distraction device gradually pulls the face forward, the surgical cuts fill in with new bone and the facial bones are steadily elongated."

Over six weeks, facial bones can be lengthened by as much as 25 millimeters, about the length of a small paper clip. "This greatly improves facial symmetry and appearance. It also widens the bones forming the nasal passage and jaw, correcting breathing and the bite," Polley says.

Aside from weekly check-ups at Rush, Danielle's treatment was provided at home. Rush staff showed her mother how to make daily adjustments to the halo device. "In the front of the halo, there were two small screws. Each morning, before work, I would turn each screw a notch," Smith says. These daily adjustments gradually tightened the wires that pulled Danielle's face forward, allowing for gradual bone growth.



Karen Smith (top right) has seen her daughter's confidence grow, as have Drs. Polley (bottom left) and Figueroa (bottom right).

Just two weeks into  
the procedure, Karen  
Smith could already  
see a dramatic  
improvement in  
Danielle's breathing  
and appearance.

**Treatment brings rewards**  
Just two weeks into the procedure, Karen Smith could already see a dramatic improvement in Danielle's breathing and appearance. After six weeks, the change in Danielle was not just physical but emotional as well. "She looked beautiful and more confident because of it," Smith says.

Distraction osteogenesis is now a standard treatment for severe craniofacial deformities, used at medical centers around the world. For patients like Danielle, it provides a simpler, more effective alternative to repeated, painful bone grafts — major surgeries in which deformities are corrected using bone from other parts of the body. "Distraction is less invasive, and the results are more stable and longer-lasting," Polley says. "It allows the body to fix the deformities by generating new bone precisely where it is needed."

Now a freshman in high school, Danielle is thriving academically and socially. Polley, Figueroa and her other Rush caregivers are clearly pleased to see her doing well.

"We've seen Danielle change from a shy little girl into an independent teenager," says Figueroa. "It's great to see her talking and smiling. That's what this work is all about." ■

# When Less Is More

(continued from page 3)

surgery, this picture is a useful tool. With the help of instruments that are specially correlated with the image of the brain on the monitor, the physician can align the patient's head with the three-dimensional image. Then, the problem area is easy to pinpoint.

"Image-guided surgery of the brain and the spine allows us to make smaller incisions," Cerullo says. "This means less blood loss, which means less discomfort, less risk of infection and a faster recovery."

Seeing the brain accurately has ultimately helped to put neurosurgery on an important path: creating procedures that are less likely to damage healthy tissue and bones. "The real changes in neurosurgery have not so much been in our understanding of the brain as in our ability to see the problems and to arrive at the cause in a less invasive way," Cerullo says.

## Gentler, more precise tools

While imaging techniques have improved over the years, so have gentler surgical technologies that make the surgery more precise. Performed at Rush and other medical centers, stereotactic radiosurgery is a noninvasive alternative to treat brain disorders.

During stereotactic radiosurgery, instead of using a scalpel, surgeons aim multiple "pencil-thin" radiation beams or arced beams of radiation directly at the tumor site while sparing healthy tissue. The Gamma Knife, developed in 1967, precisely focuses intersecting radiation beams into a target area.

"Today, less is more," Cerullo says. "When a big incision is necessary, we try to break it up into little incisions. We try to expose the least amount of brain possible to effect the cure."

## Future of neurosurgery

Many neurosurgery patients at Rush today probably would not have undergone surgery in the past because the risks were so great. "At the turn of the last century, there was a 70 to 80 percent mortality rate," Cerullo says. "Even 30 years ago, when I began my training, it was not uncommon to see a neurosurgical

ward populated almost completely by patients in a vegetative, comatose state."

But times have changed. Some procedures are performed one day and the patient goes home the next. Neurosurgeons are finding new ways to apply existing tools and techniques. Looking toward the future, many believe that surgery will be a treatment option for diseases that have been traditionally out of the realm of the neurosurgeon.

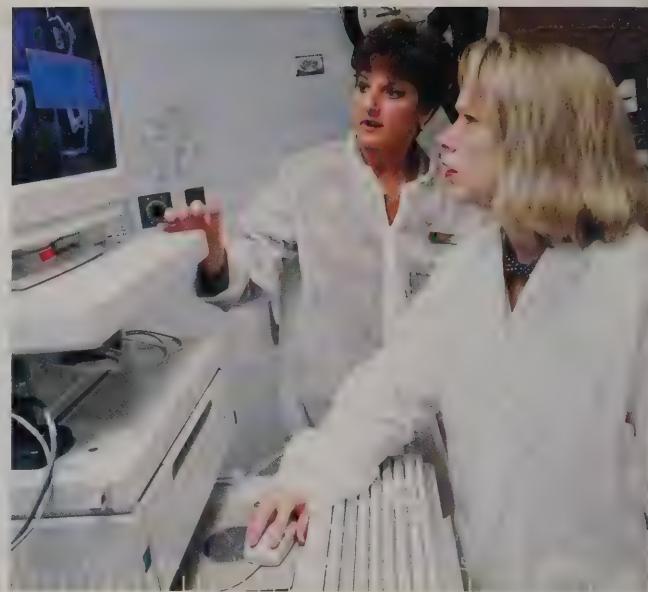
Surgical options for common chronic degenerative diseases of the nervous systems, including Alzheimer's disease, Parkinson's disease and strokes, are in the not-so-distant future, says Jacob Fox, MD, chairman of the Department of Neurological Sciences at Rush.

"We're beginning to test the possibilities of using transplanted or implanted cells to replace missing chemicals or cells in the brain," he says. Fox hopes these conditions may eventually have as many surgical options as conditions such as epilepsy have today.

Further off still, Cerullo expects that eventually more will be done surgically with psychiatric diseases, including schizophrenia and depression. "Psychosurgery is an area that has been ignored by neurosurgeons," he says. "But again, because of better imaging and diagnosis, surgical cures for some of these illnesses may be possible."

And some new diagnostic tools also are being developed. "We are close to having a urine test that would diagnose the recurrence of a brain tumor, or at least alert you to the probability that the tumor had recurred," Cerullo says. The urine test would be a cost-effective, noninvasive, easy way to monitor

**"The real changes in neurosurgery have not so much been in our understanding of the brain as in our ability to see the problems and to arrive at the cause in a less invasive way."**



Rush neurosurgeon Gail Rousseau, MD (right), learns how to use new image-guided technology.

patients rather than having them undergo other tests.

In terms of treatment of brain tumors, Cerullo is researching how to use genes to strike directly at the tumor cells. "Using genes and viruses to carry those genes, we can modify the genetic structure of the abnormal cells," Cerullo says. "In other words, we can turn off the tumor cells and stop them from being tumor cells. At least that's the promise for the future."

Whatever the future holds, Paulette VanOoteghem is pleased to be back in the classroom, seeing everything as she should. After having the surgery at the beginning of August, she returned to classes at the end of September. The symptoms that she had before the surgery are gone and her tumor has not returned.

"I like kids," she says. "I like seeing them happy, seeing them learn, watching them get that 'Ah-ha!' look on their faces. And sometimes it is not the kids who have the 'Ah-ha!' moment, it's me. Sometimes, all of a sudden in the spring, I'll be grading something and I'll realize, my gosh, he got it."

These are the moments that VanOoteghem loves most — moments in which her and her students' hard work translates into learning and understanding. And thanks to innovations in surgery, VanOoteghem can continue to help turn on the lights inside her students' minds. ■

# Germ Warfare

(continued from page 5)

By requiring his physicians to scrub and disinfect their hands with chlorinated lime between examinations, Semmelweis reduced the obstetrical death rate in his ward at the Vienna Hospital from 18 percent to 1.2 percent in 1848. For his efforts, he was condemned, his rank lowered and his practicing privileges restricted.

This was hardly surprising, because admitting that bacteria caused disease would have required physicians to abandon centuries of established, if sometimes ineffective, medical practices and treatments.

## Before there was Listerine

Not even the groundbreaking work of Louis Pasteur, the first person to demonstrate the role of bacteria in fermentation, and of Joseph Lister, who created antiseptic surgery in 1871, was enough to convince all the skeptics.

The implications of the relationship between bacteria and disease were lost on most American physicians, who thought the germ theory left too much unexplained. One Chicago commentator dismissed it as "the product of wishful oversimplification. The mere fact of the association of microscopic organisms with contagious diseases," he argued, "is incidental."

Yet, ironically, many surgeons who continued to deny the germ theory began to adopt Lister's principles of keeping germs away. Even Rush surgeon Moses Gunn, a staunch germ theory opponent, started soaking his sutures in carbolic acid solution because he recognized that it speeded healing. "I don't know much about the truth or falsity of the statements concerning bacteria," Gunn once said. "But I do know that if I wash my hands and my patient and my instruments, and use carbolic acid and iodoform, I can accomplish results that I never dreamed of 15 years ago."

## Demystifying "The White Plague"

It was German physician Robert Koch's 1882 discovery of the bacillus of tuberculosis that brought about an appreciable change in the attitudes of many doctors in America and throughout the world. By isolating a specific microbe associated with tuberculosis in all of its manifestations, Koch provided irrefutable evidence that the tubercle bacillus was the specific



Left: Rubber gloves weren't used in operations until the early 20th century, and masks were introduced even later. Below: The Operating Room Supply Processing Decontamination Department at Rush is busy 24 hours a day.



cause of the disease. Thus, he proved the germ theory.

Still, many older doctors continued to find acceptance difficult, if not impossible. The legendary Nathan Smith Davis, a professor at Rush Medical College, led the opposition — savaging the germ theory, the idea of specificity in disease put forth by Koch in 1876, and the concept of natural immunity.

Fortunately, Koch's supporters were just as vocal as his detractors. William T. Belfield, a lecturer in pathology at Rush, was especially aggressive. "If a man is seen to plunge a knife into the heart of another, the killing is a fact, not a theory," he argued. "If Koch saw tuberculosis invariably follow the introduction of isolated bacilli, the relation of cause and effect is a fact, not a theory."

Thanks to the persistence of men like Belfield, by the 1890s, microbiology had become a well-established discipline with several specialized branches, and many American medical schools, including Rush, had begun to include bacteriology in their curriculum.

## The search continues ...

For thousands of years, humans struggled to understand the nature of disease. The germ theory provided the first important insight and paved the way for the preventive and curative discoveries that have helped reduce the number of infectious disease deaths throughout the world. Today, we know not only what causes, but how to prevent diseases like tuberculosis, cholera and malaria from spreading, and we

have a slew of antibiotics to battle bacterial infections.

"Discovering the origin of disease was vital," says Rush epidemiologist John Segreti. "If you know a disease is caused by bacteria, and how it is spread, then you know how to prevent and treat it."

But the battle is far from over. Unlike viruses, which cannot survive or replicate unless they are inside of a living cell, bacteria are independent, living organisms that can adapt to their environment and to any agent that tries to destroy them.

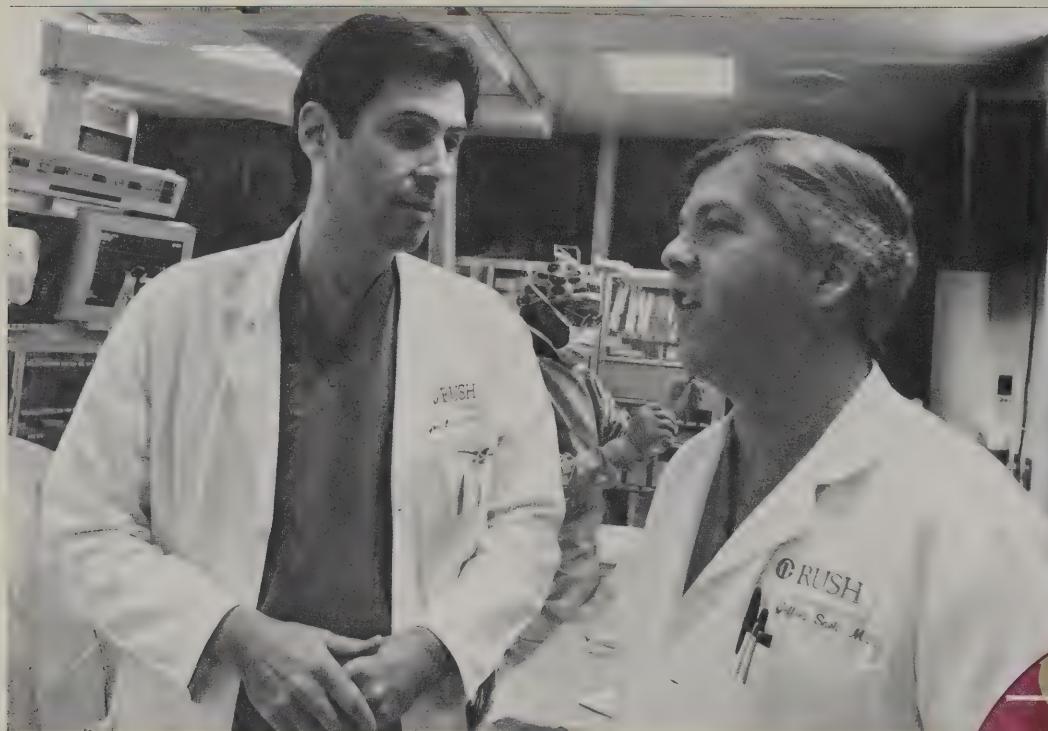
And so despite medicine's best efforts, bacteria have not gone the way of the dinosaur. They have simply figured out new ways to attack. Many new strains are resistant to antibiotics, forcing scientists to create new antibiotics designed to kill bacteria that don't respond to any existing drugs.

"A lot of people think that we'll always have new drugs to treat infections, but that isn't necessarily true," Segreti says. "We might eventually find ourselves in a post-antibiotic era, where some organisms are resistant to all of the available antibiotics."

Segreti and his Rush colleagues are participating in studies aimed at finding ways to decrease the spread of resistant and multi-resistant organisms. "We're trying lots of things at once — like decreasing antibiotic use and improving infection control practices — to see if we can have any impact," he says.

And to determine how, in the year 2000 and beyond, we can remain one step ahead of these tiny, but very resourceful foes. ■

## Using DNA to relieve persistent chest pain



Cardiologists Gary L. Schaer, MD (left), and Jeffrey Snell, MD (right), believe that stimulating the growth of new blood vessels in the heart will provide relief for heart patients suffering from persistent chest pain.

**R**ush is one of five research centers in the nation conducting clinical trials on an innovative gene therapy treatment that may provide relief for heart patients suffering from chest pain, or angina, by stimulating the growth of new blood vessels in the heart.

Angina is caused by a build-up of fatty blockage in the arteries that supply blood and oxygen flow to the heart muscle. Researchers hope that growing new blood vessels will improve flow to the heart muscle of angina patients who, because they have severe heart disease, cannot be treated successfully through more traditional treatments, such as angioplasty or bypass surgery.

"With gene therapy, a medicine composed of fragments of DNA is injected into the heart muscle. The injected gene acts like a blueprint that tells the machinery inside the cell to produce a protein called VEGF-2," says Gary L. Schaer, MD, principal investigator of the trial at Rush and director of the Rush Cardiac Catheterization Labs. "We believe this protein, when released by the heart muscle cells, will cause new blood vessels to grow and improve oxygen delivery to the heart muscle."

In the initial studies at Rush, cardiac surgeon Robert March, MD, injected the gene directly into the heart muscle through a small incision in the chest. A technique is now available that lets researchers inject the gene into the heart muscle using a catheter system, eliminating the need for surgery.

The clinical trial at Rush is the first to test how safe and effective gene therapy is for treating disease in the arteries of the heart. Although it's too soon to measure the long-term effects, early results from the first three Rush patients to receive this therapy are promising.

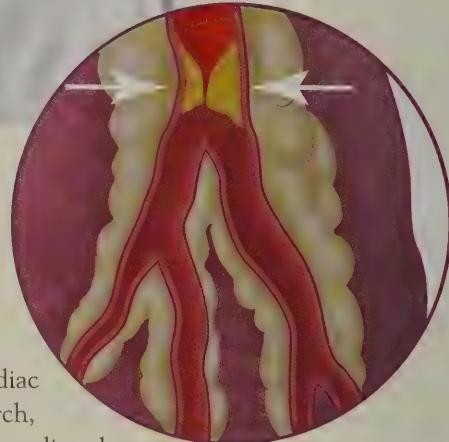
"All of them have shown some degree of improvement as far as their degree of chest pain, frequency of nitroglycerine use and stress test results," says cardiologist Jeffrey Snell, MD, co-principal investigator.

Rush is also conducting gene therapy trials for patients with severe blood vessel blockage in their legs, called peripheral vascular disease. To learn more about either trial, call (312) 942-6349.

Photography by  
Jean Clough

Angina occurs when fatty blockage (indicated by arrows) in a coronary artery restricts the flow of blood and oxygen to the heart muscle.

Illustration by  
Kristen Wienandt



— Judy Grossman

## Photodynamic therapy restores quality of life for some cancer patients

A new laser treatment offered at Rush, called photodynamic therapy, is helping patients with cancerous tumors blocking the esophagus or windpipe to regain their ability to breathe or swallow. Rush cardiovascular-thoracic surgeon William Warren, MD, is one of the first surgeons in Illinois to use this innovative technique.

This is how the three-step process works. First, the patient receives an injection of a dye called Photofrin, a photosensitizing drug. During the next two days, the drug is eliminated from most of the healthy tissue but remains in the cancer cells.

Next, physicians place a flexible tube into the patient's throat, and a laser fiber is passed through the tube and positioned near the tumor.

"Previously, surgeons would have to be very careful when burning tumors to avoid damaging the surrounding healthy tissue," Warren says.

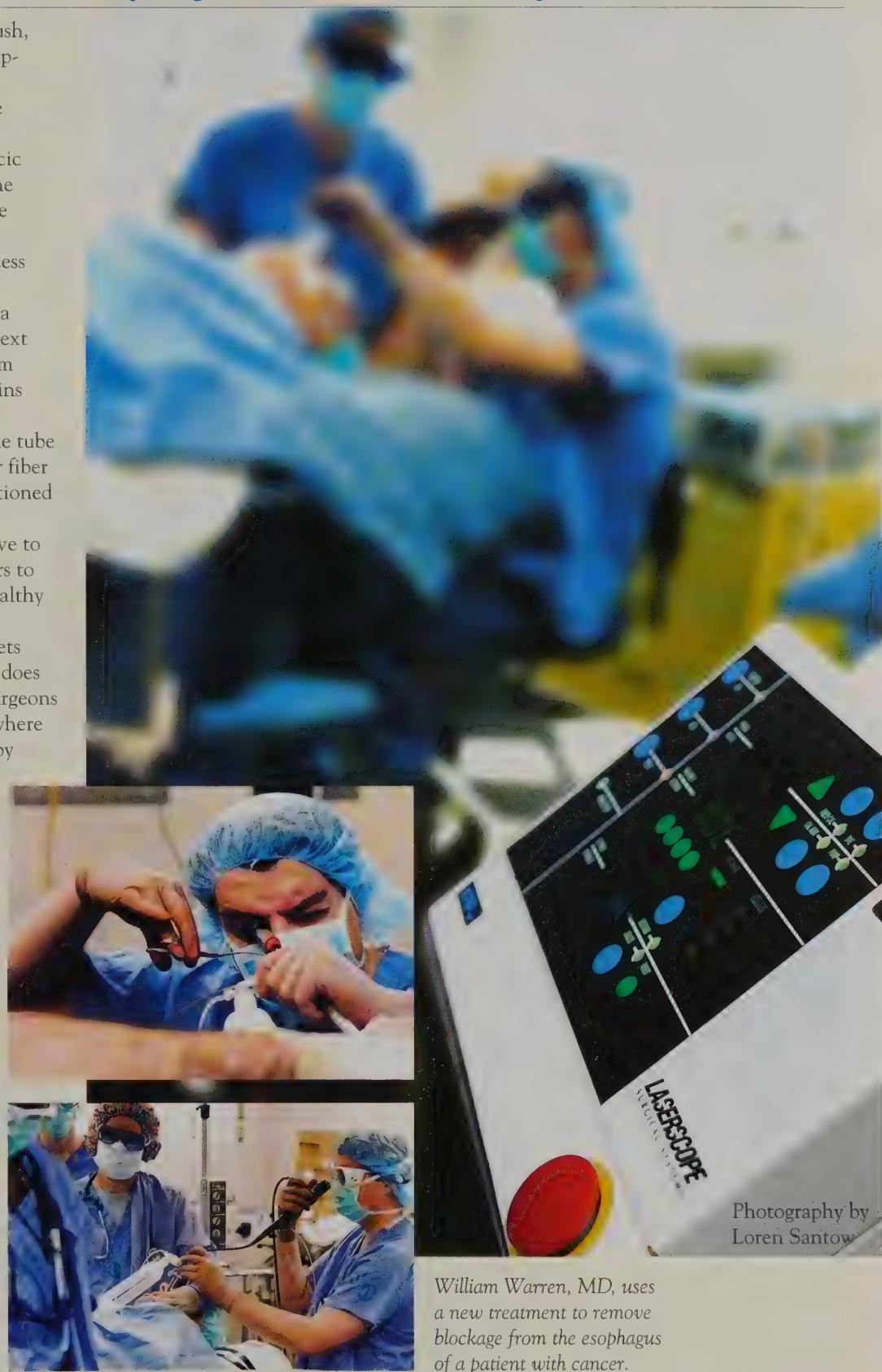
But because this new laser targets only the light-sensitized tumor and does not affect the surrounding tissue, surgeons can place it *adjacent* to the tumor, where it activates the Photofrin retained by the tumor cells, effectively reducing the blockage.

The dead cancerous tissue is removed, and after a brief healing period the patient is once again able to breathe, eat and swallow. The only side effect is temporary extreme photosensitivity, which means patients must avoid direct sunlight for between 30 to 60 days after the surgery.

Warren says that while photodynamic therapy is not a cure for these patients, it can improve their quality of life significantly.

"The procedure may cure the cancer if it has been caught very early," he says. "In most patients, however, it will simply return to them the ability to breathe and eat, which for many patients at this stage is a Godsend."

— Judy Grossman



William Warren, MD, uses a new treatment to remove blockage from the esophagus of a patient with cancer.

Photography by Loren Santow

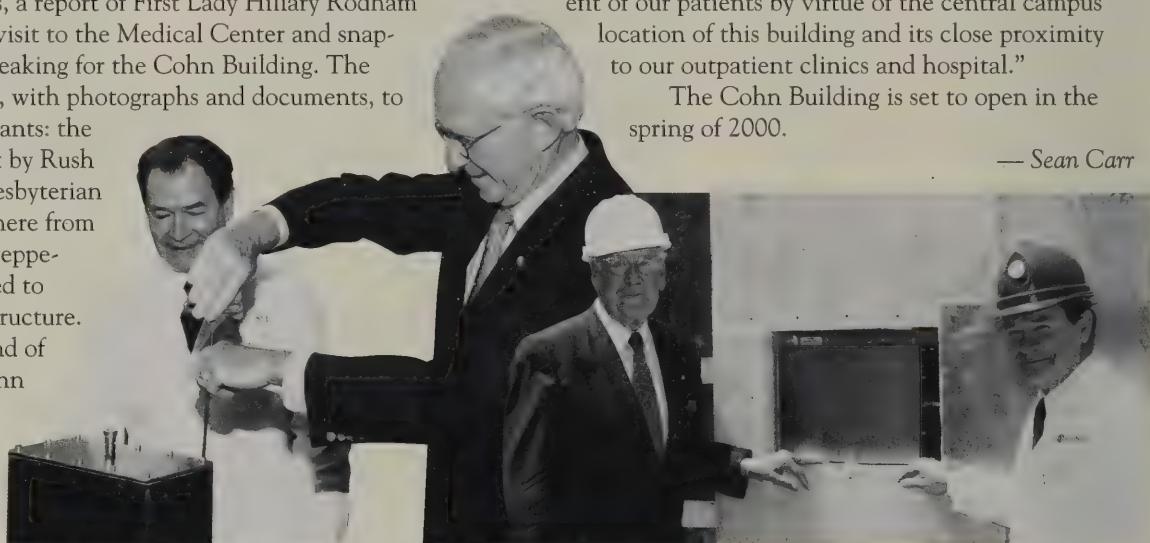
## Cohn Research Building houses reminders of the past and promise for the future

Austin Powers, the era-hopping International Man of Mystery, had no idea he was about to embark on yet another long, strange trip as he peered out from the front page of both the *Chicago Sun-Times* and the *Chicago Tribune* on Friday, June 11.

Copies of that day's papers were just two of the items inside a time capsule that Leo M. Henikoff, MD, president and CEO of Rush, and Charles H. Shaw, chair of the Rush Trustees facility committee, installed on June 11 in a ground floor wall of the Robert H. and Terri Cohn Research Building.

Other capsule contents included invitations and programs from recent Rush events, a report of First Lady Hillary Clinton's January 1999 visit to the Medical Center and snapshots from the groundbreaking for the Cohn Building. The capsule also paid tribute, with photographs and documents, to the site's previous occupants: the laboratory building built by Rush Medical College and Presbyterian Hospital, which stood there from 1893 to 1949, and Schweppes-Sprague Hall, demolished to make way for the new structure.

Topped off at the end of May, the eight-story Cohn Building will more than double the amount of research space at Rush



Leo M. Henikoff, MD, president and CEO of Rush, and Charles H. Shaw, chair of the Rush Trustees facility committee, installed the Rush time capsule.

and consolidate much of the Medical Center's research activity under one roof.

Henikoff underscored the building's significance when he announced its groundbreaking in 1998.

"Rush is a world leader in translating laboratory research findings to practical applications in patient care. The patient is never far from the minds of researchers, even if they are working in a basic science laboratory and do not see patients. Collaboration between researchers and those who care for patients will be further enhanced to the benefit of our patients by virtue of the central campus location of this building and its close proximity to our outpatient clinics and hospital."

The Cohn Building is set to open in the spring of 2000.

— Sean Carr

## Recent Appointments at Rush



**John Polley, MD,** was appointed professor and chairman of plastic and reconstructive surgery and co-director of the Rush craniofacial center. Polley, who came to Rush

from the University of Illinois at Chicago Medical Center, where he was director of the Craniofacial Center, has done pioneering work correcting acquired or congenital defects or abnormalities of the head, face and jaws. He currently holds appointments at Cook County Hospital and Michael Reese Hospital and Medical Center, and is a consultant physician to the West Side Veterans Administration Hospital.



**Leonard Cerullo, MD,** was named professor and chairman of the Department of Neurosurgery and co-director of the Rush Neuroscience Institute. He is also the medical director of the Chicago Institute of Neurosurgery and Neuroresearch (CINN), the largest neurosurgical group practice in the Midwest. Cerullo, who is credited with pioneering the use of lasers in neurosurgery, was acting chief of neurosurgery at Northwestern from 1984 to 1986 before founding CINN in 1987. He is widely recognized for his surgical skill and clinical experience treating a wide variety of neurological conditions.



**Martin J. Gorbien, MD, FACP,** was appointed director of the Rush Section of Geriatric Medicine. Gorbien completed his internal medicine training

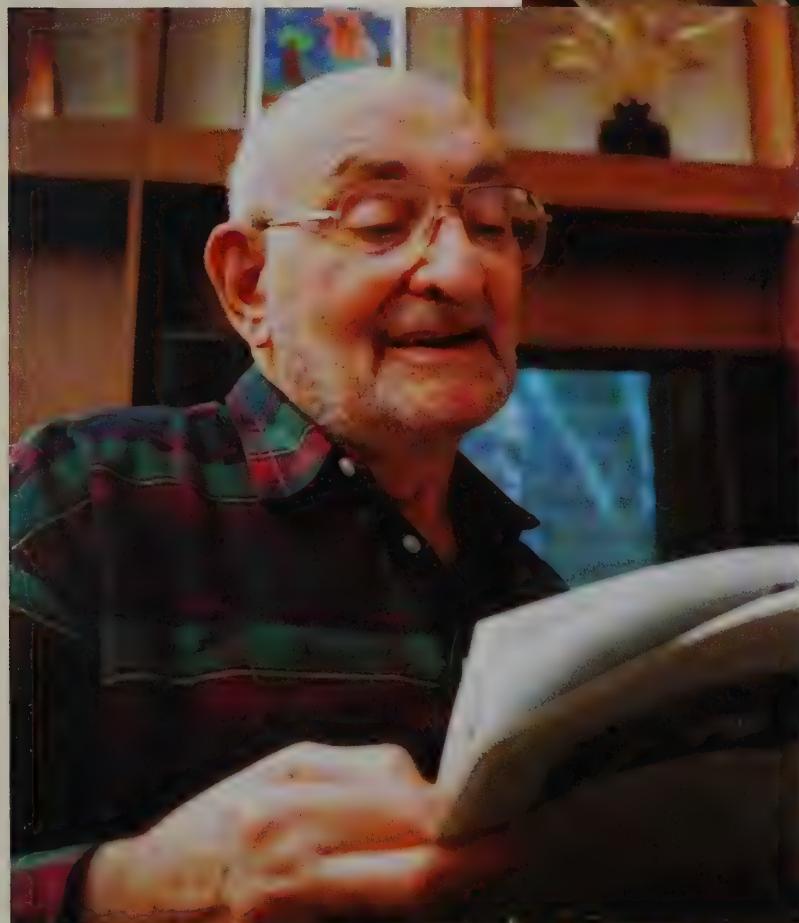
at Mercy Hospital and Medical Center in Chicago and his geriatric fellowship at the UCLA Multi-Campus Division of Geriatric Medicine in Los Angeles in 1989. He worked at the Cleveland Clinic Foundation before becoming program director of the Geriatric Medicine Fellowship at the University of Chicago in 1994. He joined the Rush staff in 1998 as the program director of the Section of Geriatric Medicine.

## Waud Resource Center devoted to issues of aging

Photography by David Joel

Eighty-six-year-old Frank Riley is surfing the Web. It might not sound like a big deal, but for Riley, it's a major accomplishment. The retired lawyer didn't even know how to turn a computer on — until he visited the Anne Byron Waud Patient and Family Resource Center for Healthy Aging and started taking Internet lessons. Today, he can manipulate the mouse with confidence and access the vast amount of information available online.

Giving older adults like Frank Riley tools that enable them to lead healthier, more active or more independent lives is an important part of the mission of the Waud Center, which opened June 2. Located in the Johnston R. Bowman Health Center, it provides comprehensive information about how to stay healthy as you grow older, age-related health problems, Medicare and community programs for older adults.



Top right: Visitors to the Waud Center look to assistant Marjory Clements (right) for guidance — and Internet lessons. Above: The Waud Center helps older adults remain healthy, informed and active.

It also offers patients and their families support, in a nonclinical setting, to help them cope with medical calamities.

"People recognize the aging process but often try to put off dealing with the inevitable," says Patricia Rush, MD, co-director of the Rush Institute for Healthy Aging. "Then, something catastrophic occurs, like a stroke, and suddenly a family has to deal with these issues that they weren't prepared for. We can help them sort things out and take away some of the confusion and helplessness they might be feeling."

The center comprises four distinct areas: a living room-library stocked with brochures, books, audiotapes and videos; a conference room for private conversations; a children's corner; and a computer nook.

"We tried to create a comfortable environment that doesn't feel like a hospital," says Anna Walters, RN, the center's coordinator. "People can come in and sit on the couch and read about a disease, or go on the Internet and find information about the latest treatments, or just talk about their diagnosis if they need to."

— Judy Grossman

## Rush elects new trustees

Abby O'Neil, Robert J. Darnall and Robert S. Morrison have been elected general trustees, and Bishop William D. Persell, Janet Wolter, MD, and Paul Jones, MD, have been elected annual trustees of Rush-Presbyterian-St. Luke's Medical Center.

O'Neil, an advocate for children with learning disabilities, is a member of the advisory board for the Rush Neurobehavioral Center in Skokie and serves on the leadership committee for the Rush Children's Hospital.

Darnall is the president and chief executive officer of Ispat North America, Inc., the regional headquarters of Ispat International N.V., one of the largest steel producers in the world. He serves on the board of the University of

Chicago and has been a member of the Leadership Committee for the Rush Heart Institute since 1987.

Morrison is chairman, president and chief executive officer of The Quaker Oats Company. He serves on the board of trustees of Lake Forest College and is a member of the Dean's Council at the J.L. Kellogg Graduate School of Management at Northwestern University.

Persell, Episcopal bishop of Chicago, is known for his long-standing commitment to multicultural relations. He previously was dean of Trinity Episcopal Cathedral in Cleveland and rector of St. Ann and the Holy Trinity in New York City. He has also held posts at St. John's in Los Angeles and St. Paul's Church in Tustin, California.

Wolter, who was recently elected president of the medical staff, is the Brian Piccolo Professor for Breast Cancer Research and senior attending physician at Rush-Presbyterian-St. Luke's Medical Center. She was instrumental in the opening of the Rush Comprehensive Breast Center, the first of its kind in Chicago, in 1985.

Jones is an assistant attending physician and assistant professor in the Department of Otolaryngology at Rush-Presbyterian-St. Luke's Medical Center, where he also serves as director of the Section of Pediatric Otolaryngology and director of resident education. He has been chairman of the Benjamini Rush Society and is currently president of the Rush Medical College Alumni Association.



Abby O'Neil



Robert J. Darnall



Robert S. Morrison



Bishop William D.  
Persell



Janet Wolter, MD



Paul Jones, MD

## Changes in Medical College administration

Erich E. Brueschke, MD, former Dean of Rush Medical College, has been promoted to vice president for University Affairs at Rush University. Rush's senior vice president of medical affairs, Larry J. Goodman, MD, has been named acting dean of Rush Medical College.

Brueschke joined Rush Medical College in 1976 as chairman of the Department of Family Medicine, and was appointed dean and vice president of medical affairs in 1994. He served as chairman of the Midwest Council of Deans for five years and has been chair of the Illinois Council of Deans for the past six years. He is also medical editor for the *World Book Rush-Presbyterian-St. Luke's Medical Center Medical Encyclopedia* and is the editor-in-chief of *Disease-a-Month*. In his new role, Brueschke will have



Erich E.  
Brueschke, MD



Larry J.  
Goodman, MD

primary staff responsibility in the approval process of the Board of Overseers regarding the policies and procedures of individual colleges at Rush University.

Goodman came to Rush in 1976 to pursue a residency in Internal Medicine. He later was named assistant dean of Clinical Curriculum, associate dean of Medical Student Programs, and director of Inter-Institutional Affairs for Medical Affairs at Rush Medical College. From 1996 to 1998, he was medical director at

Cook County Hospital. He returned to Rush as senior vice president of medical affairs. Goodman has published numerous papers and is a fellow of the American College of Physicians and the Infectious Disease Society of America. He has received many awards in recognition of his work as a clinician and teacher.

# Who is at risk for sexually transmitted diseases? A Rush expert offers his perspective

Interview by Jill Waite

According to a 1998 study by the American Social Health Association and Kaiser Family Foundation, sexually transmitted diseases (STDs) affect one in four Americans. The consequences of contracting an STD include infertility; ectopic, or tubal, pregnancies; and even death. Although STDs affect both men and women, the impact of STDs is most profoundly felt by women.

Sebastian Faro, MD, PhD, chairman of the Department of Obstetrics and Gynecology at Rush and editor-in-chief of *Infectious Diseases in Obstetrics and Gynecology*, recently sat down with the RushRecord to discuss the effects of STDs on women and the importance of prevention and early diagnosis.

Although most women think that they are invulnerable to sexually transmitted diseases (STDs), the truth is that today more women are at risk for contracting them than ever before. Studies have shown that an increasing number of women are becoming sexually active at an earlier age. In addition, many are waiting longer to get married. What this all boils down to is that women are more likely to have multiple sex partners, and because of this, they are at higher risk for STDs.

What's really tragic is that many STDs are "silent," in that they are asymptomatic in the early stages. If untreated, infection can spread into the uterus and fallopian tubes without a woman even knowing it, sometimes leading to infertility and, in pregnant women, ectopic pregnancies or premature deliveries.

Although there seems to be more infertility today, it isn't clear if this is related to an increasing incidence of STDs or if it's just a matter of better, and more accessible, diagnostic tools. I suspect that it's a little of both. Years ago, infertility testing wasn't covered by insurance companies and, so, relatively few women could afford it. Also, many couples didn't seek diagnosis and treatment. Today that isn't the case — today there are options. But what many women are finding is that a sexual encounter from years ago, whether their own or their partner's, has resulted in reproductive problems.

That's why prevention and early diagnosis are so important. I encourage my sexually active patients, no matter what form of birth control they use, to use condoms. It's not just to prevent AIDS, it's to prevent a host of STDs. And when we talk about STDs, we're not just referring to gonorrhea, chlamydia and

herpes. We need to think of STDs as any condition that arises from an organism that can be transmitted through sexual contact. For instance, both hepatitis B and C can be transmitted through sexual activity and are very prominent viral infections. Hepatitis B can progress to liver failure. Group B streptococcus can also be transferred during sex. It has received a lot of attention lately because of the devastation it causes in newborns as well as mothers.

Because some STDs, like group B streptococcus, herpes and condylomata, cut across socioeconomic, ethnic and age groups, it is sometimes difficult to identify women who are at risk. That's why I think we're looking toward universal screening for some of these conditions, similar to how we now do Pap smears. But some of the tests are expensive, so doctors should sit down with patients to develop a detailed history and a risk profile before conducting these tests. Once these conversations begin, the hope is that the patient will realize that the doctor is not being judgmental but is actually interested in the patient's welfare.

Risk factors include previous blood transfusions, intravenous drug use, multiple sex partners (two or more) and sex partners known to use intravenous drugs. A woman with any one of these risk factors should consider undergoing testing for STDs.

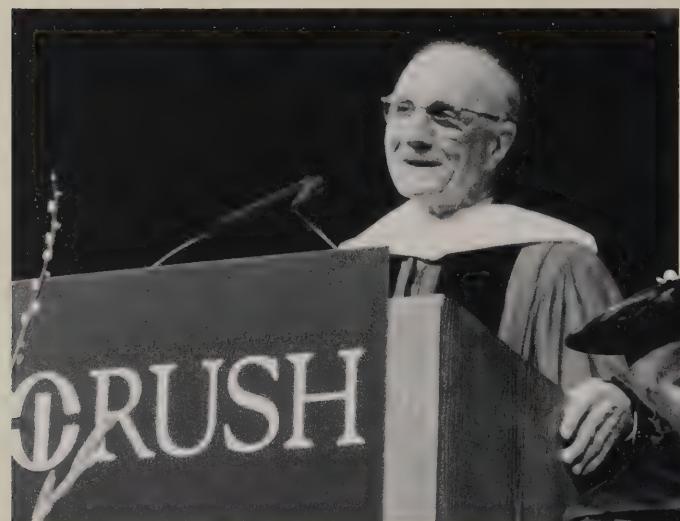
Although the biggest problem today with STDs is the rising number of adolescents and older teenagers who contract them and then pass them on, all sexually active women are at risk. Many women might feel uncomfortable talking about STDs with their doctors, but the fact is, most of these conditions are curable and damage can be prevented if they are detected early on. ■



Sebastian Faro, MD, PhD

# Rush University Commencement

On June 12, 372 Rush University students received their diplomas from the colleges of medicine, nursing and health sciences. The following is an excerpt from the 1999 Rush University Commencement Address by Edmund D. Pellegrino, MD, director of the Center for Clinical Bioethics and the John Carroll Professor of Medicine and Medical Ethics at the Georgetown University Medical Center.



*“Always remember, those you serve are dependent, anxious, in pain, fearful, vulnerable and exploitable. They are forced to seek your help. They are not consumers, clients, customers, ‘insured lives,’ or ‘enrollees.’ They are patients — persons bearing a burden of suffering, and in need of healing.”*

— Edmund D. Pellegrino, MD



Photography by David Joel



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# Rush Reconnect

Fall/Winter 2000-01

A Publication of Rush-Presbyterian-St. Luke's Medical Center

## Best of Both Worlds

Innovations in heart  
care create new  
treatment options.

Repairing the Body's Switchboard

Moving Medicine Forward

Nurse Practitioners Offer Access

A Guiding Hand for Kids

Can Doctors Assign Gender?

## RushRecord

Fall/Winter 2000-01

**Editor:**

Jill Waite

**Managing Editor:**

Judy Grossman

**Editorial Staff:**

Sean Carr

Ellen M. Hunt

Patrick Kelly

Melanie Ragland

Laura Ramos

**Design and Art Direction:**

Brierton Design

On the cover: Rush cardiologist

Sandeep Nathan, MD, holds

a balloon catheter. Photo by

Andrew Campbell.

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Diane McKeever

*Vice President*

Sara Stern

*Associate Vice President of Communication*

Marie Mahoney

*Director of Publications*

Rush-Presbyterian-St. Luke's Medical Center

1700 West Van Buren, Suite 250

Chicago, IL 60612

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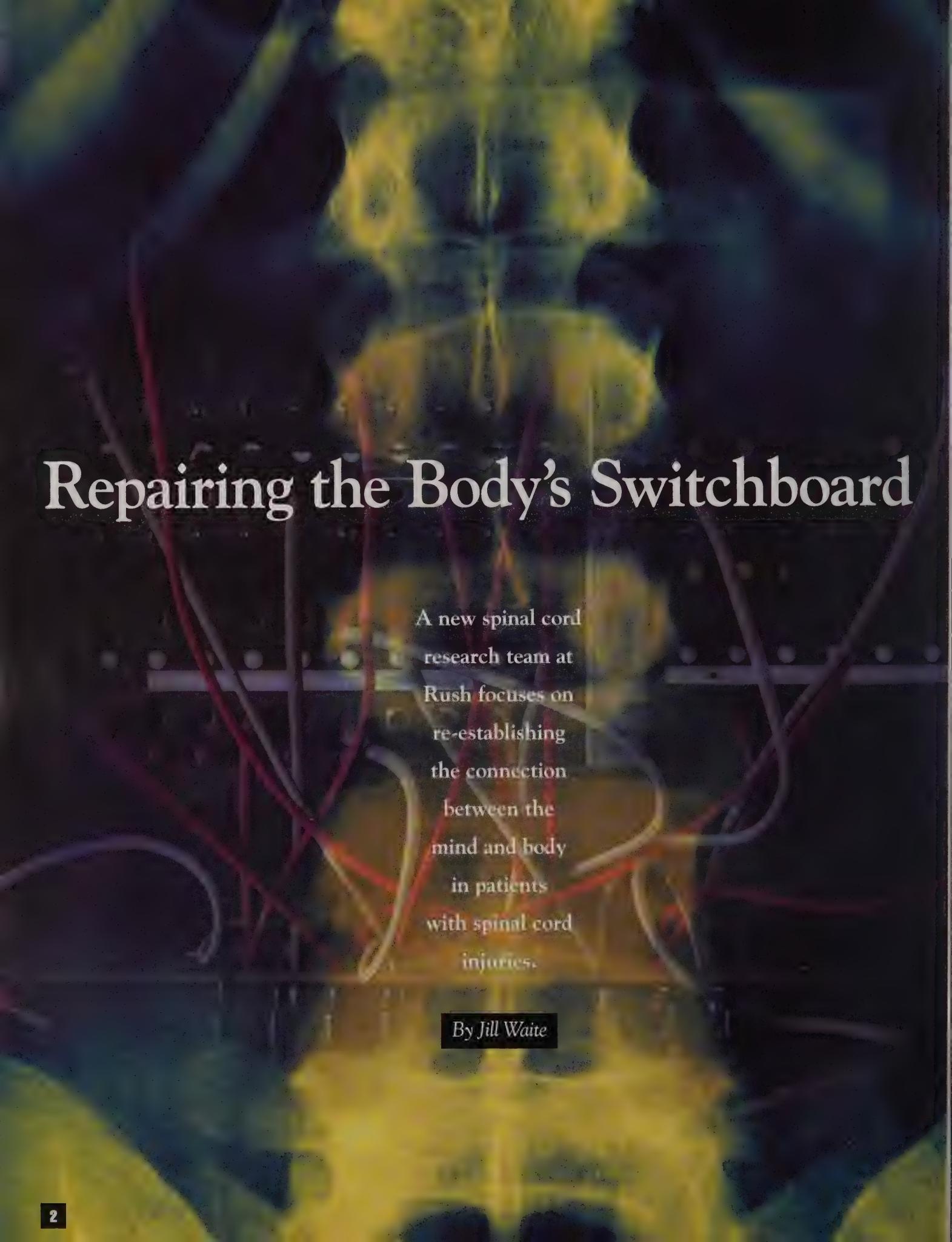
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# Repairing the Body's Switchboard



A new spinal cord research team at Rush focuses on re-establishing the connection between the mind and body in patients with spinal cord injuries.

By Jill Waite

**Approximately 250,000 people in the United States live with injuries to the spinal cord — most of whom are boys or men injured between the ages of 16 and 30.**

Jane Carvey has been many things in her life: loving mother, devoted wife, dedicated occupational therapist. But in May of 1999, a tragedy forced Jane to become something no one could ever expect or want — Jane became a quadriplegic.

Nineteen months ago, Jane and her youngest son, Patrick, took a leisurely bike ride on a neighborhood trail. But on that spring day, Jane's attention momentarily drifted away from the trail in front of her, leaving her unaware that a "car stop," an 18-inch high blockade used to protect bicyclists from motor vehicles, lay in her path. In a matter of seconds, Jane's bike collided with the car stop, flipping her over the handlebars and slamming her head first onto the concrete. "I knew exactly what I had done. I couldn't move or feel my limbs and knew instantly that I was paralyzed from the neck down," she says.

**A breakdown in the body's switchboard**

Jane was right; the force of impact had severely damaged her spinal cord, the bundle of nerves that reaches from the base of the neck to the waist. The spinal cord is the central part of a complex communications network inside the body that drives every breath we take, every movement we make and every sensation we feel. It even controls heartbeat, body temperature and the ability to sweat. Like a switchboard, the

spinal cord both sends and receives messages — from the body to the brain and from the brain to the body. When the spinal cord is severely damaged or severed, it is as if the body's switchboard breaks down. Messages are left undelivered, leaving important body parts, like muscles, with no instructions on how or when to perform.

The effects of spinal cord injuries (SCIs) vary depending on where the injury occurs, and injuries are classified as being complete or incomplete (see illustration on page 5). Slightly more than one half of all injuries result in quadriplegia, or paralysis in the arms and legs, while the remainder result in paraplegia, or paralysis in the legs. Since there is no cure, most SCI patients are bound to wheelchairs for the remainder of their lives.

Approximately 250,000 people in the United States live with injuries to the spinal cord — most of whom are boys or men injured between the ages of 16 and 30. Because victims tend to be young at the time of injury, the majority are sentenced to 40 or 50 years in a wheelchair — years in which they may be deprived of picking up a child to give a hug, taking a deep breath of fresh air and going to the bathroom alone. "It's taken away my privacy and my independence. If I want to do anything, I have to ask for help and I hate that," Jane says.

**State funding and a new team of experts create new opportunities**

To help people like Jane and those who will experience SCIs in the future (an average of 7,800 new injuries occur each year nationwide),



Rush's new spinal cord research team includes (from left to right) Noam Stadlan, MD, Mitchell Gropper, MD, Leonard Cerullo, MD, Fred Geisler, MD, and Richard Fessler, MD, PhD. (Not pictured: Roy Bakay, MD.)

## While repair and regeneration of the spinal cord hold promise, so does the more futuristic approach of circumvention.

the Illinois state legislature passed a bill to establish a special spinal cord research fund in the state treasury. Soon after Governor George Ryan signed the bill, the chairman of Rush's Department of Neurosurgery, Leonard Cerullo, MD, announced that top spinal cord researchers Richard Fessler, MD, PhD, and Roy Bakay, MD, would be joining him and Rush's Fred Geisler, MD, Mitchell Gropper, MD, and Noam Stadlan, MD, to form a spinal cord injury research team. By approaching the problem

from different angles — medically, surgically and technologically — the team will focus on finding better ways to treat these injuries. "By bringing leaders in the field together, we are laying the groundwork for advances in the treatment of spinal cord injuries," Cerullo says.

For Jane and her family, both the bill and the formation of the new team were cause for celebration. As a leading researcher in Parkinson's at Rush, Jane's husband, Paul, is keenly aware of the importance of funding and collaboration among experts. "Chicago has always been a leader in the neuroscience field, but never in the area of spinal cord research. That will all change with this new team and we are thrilled," Paul says.

### A once fatal condition becomes treatable

Until recently, the most significant advances in treating traumatic SCIs occurred during World War II. Before then, the condition was considered fatal, with many people dying soon after injury. Others lingered on for weeks and sometimes months only to die of complications such as kidney infection, respiratory problems or infected skin sores. But the sheer number of injuries incurred during the war increased the demand for improved approaches and brought about better methods of transporting victims from the field to the hospital. And the introduction of penicillin in 1939 provided ample ammunition against the ravages of infection. With these advances, many people with SCIs began to live longer.

It took 40 years, though, for research to reveal the cascade of events following the initial injury — a cascade that results in further damage to the spinal cord. By administering drugs to decrease the swelling in the spinal cord soon after injury, experts found that the effects of injury



Since Jane Carvey's tragic bike accident, the Carvey family (from left to right: Paul, Patrick, Jane and Christopher) has worked hard to maintain their busy schedules, which include sports practices and school activities.

could be reduced. Today people with spinal cord injuries are given drugs as early as possible by paramedics or in the emergency room. They then undergo surgery to reduce pressure on the spinal cord and provide stabilization to prevent further injury.

But for Jane, who cannot walk or move her arms, the progress of the past is of little consolation. Cerullo echoes this sentiment. "The real problem is still the real problem. No matter how good the early care, no matter how good the medications or how good

the prevention of complications, a person with a complete SCI is still paralyzed — maybe today's treatment has given them more mobility or sensation than they would have had 30 years ago, but they're still paralyzed," he says.

### Establishing a connection

That is why the new research team at Rush is focusing on restoring mobility by establishing a connection between the brain, the spinal cord and the rest of the body. "A spinal cord injury is like a cut in a phone wire. There are two ways to resume communication — one way is to repair the wire, another way is to string a new wire around the cut wire," Cerullo says.

For the past 20 years, Richard Fessler, MD, PhD, professor of neurosurgery, has been studying the potential of transplanting fetal tissue into injured spinal cords to restore their integrity and eventually re-establish connections. "We've learned over the past decade that, in fact, the spinal cord does have some potential for repair and regeneration. Previously, the common belief was that it had no potential for repair," Fessler says.

The results of animal studies using this technique were very encouraging, with improvements seen in 40 percent of the subjects. In fact, the study was successful enough to take the next step — to evaluate the approach's safety and feasibility in treating humans. And so eight patients with injuries below the base of the neck underwent tissue transplantation. Each patient had already developed a cyst on the spine, a complication related to SCI, that required drainage. During the drainage procedure, Fessler and his colleagues took the opportunity to transfer the tissue. With no major complications, the procedures

## "By bringing leaders in the field together, we are laying the groundwork for advances in the treatment of spinal cord injuries."

proved to be safe. And patients had at least some neurologic change — some had feeling where there had been none before, and a few had a slight increase in their ability to move their legs and feet. The most remarkable improvement was in a woman who had walked with two canes for more than 30 years. She eventually got to the point where she could walk unassisted.

Fessler stresses, though, that the reasons for the improvement remain unclear. "Perhaps by draining the cyst we did something, or perhaps the transplanted tissue secretes a hormone that helps marginally functioning neurons perform better or perhaps we actually did establish some sort of healthy connection. We can't really tell from this study, which is why our next step is a controlled study in which we can compare results," Fessler says.

But that's just one way to approach the cut phone wire. While repair and regeneration of the spinal cord hold promise, so does the more futuristic approach of circumvention. Rather than fix the damaged cord, researchers like Roy Bakay, MD, who joined Rush in September as a professor in the Department of Neurosurgery, are trying to work around the problem with the aid of computers and sophisticated software. In their revolutionary work, Bakay and his colleagues have accomplished what seemed impossible — they gave the power of communication to a completely paralyzed stroke patient who was unable to speak.

By implanting electrodes in the part of the patient's brain that receives and interprets nerve impulses and directs voluntary movement, Bakay's team was able to transmit the electrical impulses in the patient's brain to a computer so that the brain could instruct the computer to do what the body could not.

When told to visualize his left hand moving a computer mouse, the patient was able to direct the computer's cursor to certain letters on his computer screen, even though his hand never moved.

It took the patient and Bakay's team months of hard work to accomplish this amazing feat, but with practice and some adjustments in the software, the process eventually became more natural to the patient and he got to the point where he could type three characters per minute. Scientists hope that this technology can help patients with no motor skills perform such tasks as turning on a light, controlling temperature in a room or surfing channels on TV.

But Bakay believes that cortical implants and computers, combined with other novel approaches involving muscle stimulation, may have an even

more profound impact on the lives of paralyzed men and women, with the computer taking on the role of the body's switchboard operator. Studies have already shown that the mind can communicate with the computer. If researchers can get the computer to translate that message to the rest of the body, patients may be able to gain enough movement to perform basic functions.

### Removing the obstacles

Identifying and creating technology to help find a solution is just one obstacle that lies ahead for researchers. Another is the relatively small number of SCIs to study and the lack of reliable data related to their treatment, according to Fred Geisler, MD, assistant professor in the Department of Neurology at Rush. So Geisler and his colleagues have focused their efforts on collecting data from 26 medical centers around the country. Geisler's study will produce a wealth of information from which researchers like Fessler and Bakay will benefit. "What we've created is a ruler — a measuring device with which other physicians and researchers can measure their success. Because not every patient starts with the same level of problem, this has been difficult," Bakay says. "Success is not a matter of who walks across the finish line, success in SCI treatment needs to be assessed in terms of how well patients progress."

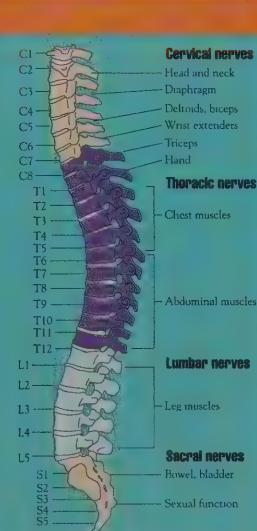
Perhaps the largest obstacle, though, is something far more basic — funding. Although encouraged by their progress, Fessler, Cerullo and Geisler are guarded in their optimism because a cure will not come cheaply and as a result may not come quickly. "The answers are definitely there, but the answers are expensive," says Cerullo.

But as the Carvey family knows, leaving the questions unanswered is even more costly — both financially and emotionally. Faced with more than a quarter of a million dollars in expenses to renovate their home for Jane's special needs, the Carveys have had to turn to friends and family for support. And although the ramps in her home and the specially designed bathroom have made life easier for Jane, they offer assistance only in overcoming physical barriers. "The limitations are so significant," Jane says. "They alter every aspect of your life: your self-esteem, your morale, your relationships with your family — everything." ■

### Injury Classification

The impact of a spinal cord injury on the body depends on where the injury occurs; generally, the higher the injury, the more extensive the dysfunction. Injuries are classified as complete or incomplete, with complete injuries resulting in total loss of sensation and function below the level of injury and incomplete resulting in partial loss. For example, Jane Carvey's injury occurred between the C5 and C6 vertebra and was considered complete, leaving her with no sensation or mobility in her chest, abdomen and legs but just enough mobility to lift her arm to press the lever that directs her wheelchair.

Illustration by Kristen Wienandt

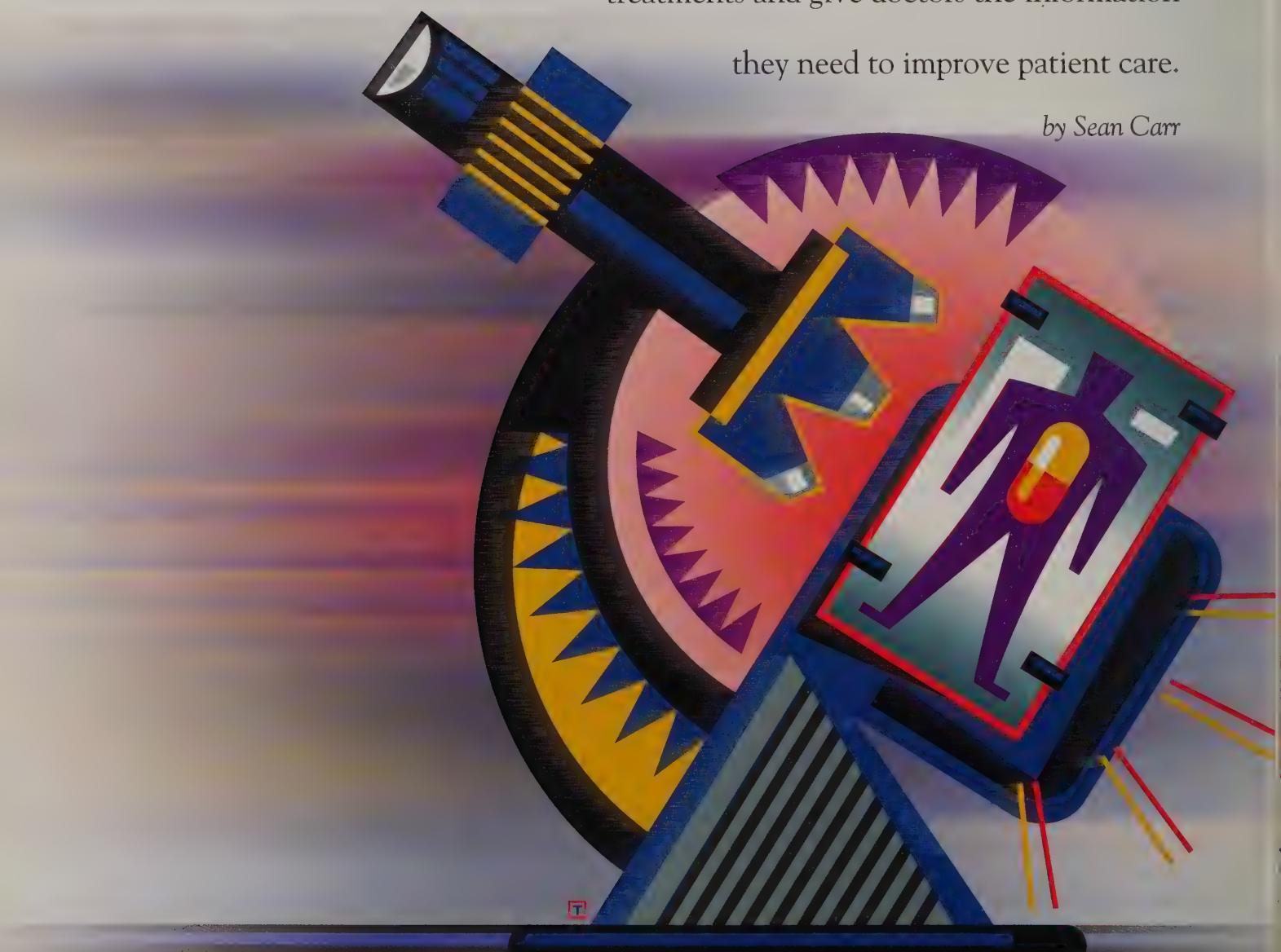


To help fund Rush's spinal cord injury research efforts, Paul and Jane Carvey have established the Jane Carvey Spinal Cord Research Fund. For more information about this fund, call Mari Philipsborn at (312) 942-6113.

# Moving Medicine Forward

Clinical trials offer patients alternatives to standard treatments and give doctors the information they need to improve patient care.

by Sean Carr



**Although it is the doctors, nurses and research assistants who plan the trials, perform the procedures and analyze the results, it is the trial participants who take that crucial leap of faith.**

**T**hey gave Barbara Turner a choice. They allowed Karen Kolschowsky an opportunity to take greater control of her own health and help others. They saved James Bernhardt's life.

"They're the only way we find anything out," says Janet Wolter, MD, professor of medicine and Brian Piccolo Professor of Cancer Research at Rush.

They are clinical trials.

Thousands of clinical trials are being conducted in the world today — not just for headline-making cures and vaccines but for improved treatments of all kinds. Because of clinical trials, epilepsy patients have more effective medications with fewer side effects and new drugs like protease inhibitors are helping AIDS patients live longer as the search for even better treatments continues.

Medicine, though, is only part of the picture. For instance, people who never could have withstood the strain of traditional heart bypass surgery are now eligible for a life-saving procedure thanks to gentler, less invasive approaches developed in recent years by way of clinical trials.

These advances come slowly, after years of testing — in the laboratory, where basic researchers first develop new therapies, and then with patients in clinical trials, which help to determine safety, effectiveness and the full range of potential benefits and side effects. Only after all of these issues have been addressed does a new treatment get approved for widespread use.

#### **Clinical trials at Rush**

There are 1,200 clinical trials active at Rush today. Although it is the doctors, nurses and research assistants who plan the trials, perform the procedures and analyze the results, it is the trial participants who take that cru-

cial leap of faith. They do it for many reasons. Some aren't satisfied with the care options available to them. Others do it because they're concerned about their own health — and the health of future generations as well. And for some, a trial may represent their last hope. No matter what their motivation, they are all helping open doors for countless others.

#### **One door closes, another opens**

The final door seemed to have slammed shut for James Bernhardt. In the fall of 1998 — after several angioplasties, two bypass operations and years of medication — his failing heart still wasn't pushing enough blood out to his body. A heart transplant, his doctor in St. Louis told him, was his only hope. That news barely had time to sink in when Bernhardt learned that, because of his age and the condition of his aorta — the large artery leading out of his heart — he was ineligible for a heart transplant.

But his doctor wasn't about to give up. "He told me, 'You're a vibrant 71-year-old. I want to try and help you,'" Bernhardt recalls. "So he sent me up here to Rush."

Today, blood is pumping through Bernhardt's body courtesy of a left-ventricular assist device, or LVAD. Oxygenated blood flows from his weakened heart into a small pump implanted in his abdomen. The battery-powered pump generates the force necessary to push that blood out through the aorta and to the rest of his body.

The LVAD, created and still used as a temporary bridge to transplantation for patients awaiting a donor heart, is now being studied as a permanent alternative for patients who are ineligible for a heart transplant.

"This is truly a landmark study," says William Piccione, MD, surgical director of the Rush Heart Failure and Cardiac Transplant Program, who implanted the device in Bernhardt. "These are patients with no



Thanks to pioneers like Barbara Turner, researchers at Rush were able to prove the effectiveness of radiation therapy in preventing coronary arteries from re-narrowing after angioplasty.

Photography by Andrew Campbell

alternatives. The LVAD may give them one," he says.

#### A better way

Unlike James Bernhardt, Barbara Turner had alternatives, but she didn't find them terribly attractive. Almost three years ago, she was told that fatty deposits, or plaque, had almost completely blocked one of the arteries that feeds her heart. Typical treatment for her condition is angioplasty, in which a balloon-tipped catheter inserted into the artery is inflated and deflated a number of times, flattening the plaque against the arterial wall and widening the narrowed pathway so that the heart muscle is once again receiving the blood it needs. Yet in 35 to 40 percent of cases, the artery will re-narrow and require further angioplasties or, possibly, bypass surgery.

Hoping to avoid any additional procedures, Turner elected to undergo an experimental treatment immediately after angioplasty. The treatment involves low doses of radiation and is now in clinical trials at Rush (see page 17).

That new procedure appears to have made all the difference. More than two years after her initial angioplasty, Turner hasn't needed any further treatment, and because of several successes like hers, Rush recently received approval to offer the new treatment to the control patients in the study who had undergone angioplasty alone.



James Bernhardt, shown here with his wife, Georgia, is alive today because of the left-ventricular assist device (LVAD) he received as part of a Rush trial.

#### Safety first

Not every clinical trial involves radiation, but many — especially those testing aggressive treatments of life-threatening illnesses — do carry risks. These risks can range from the mild to the severe, and because lives are often at stake, all clinical trials are subject to the same strict regulations and supervision. Several federal agencies, from the Food and Drug Administration to the Office for Human Research Protection, regulate the conduct of clinical research across the country. At academic medical centers like Rush, Institutional Review Boards must review trials to ensure that they are medically justified and that every effort is being made to protect prospective participants from harm.

The cornerstone of this protection effort is the consent document. It tells patients, in language they can understand, about every aspect of a trial. How long it will last. What the treatment involves. The anticipated side effects, both good and bad. And that, in the end, a treatment may not work.

At Rush, the consent document for the Study of Tamoxifen and Raloxifene, or STAR trial — one of the largest breast-cancer prevention trials ever undertaken — is a very thorough eight pages. It describes the trial, which compares the effectiveness of two medications to see which might be more effective in preventing breast cancer among women at high risk for the disease. It also describes the potential, and serious, side effects for each of the medications, which include blood clots in the legs or lungs and increased risk of stroke.

"They did a great job of explaining everything," says STAR participant Karen Kolschowsky. "They really give you both sides — what the positives are, what the possible side effects might be."

#### Shaping the future of health care

What makes an otherwise healthy woman such as Kolschowsky volunteer for a study like STAR?

"There has to be a certain amount of altruism," says Janet Wolter, MD, who has been active in cancer research since she came to Rush in 1963. For the past two decades, she has focused her efforts on breast cancer and is directing the Rush arm of STAR. "Many of the younger women at high risk are concerned not only about themselves but also about their daughters. They don't want them to have to go through the same anxiety. Or even if they don't have children, they know that they're helping somebody else."



Only after all of these issues have been addressed does a new treatment get approved for widespread use.



## Made up of unbiased researchers, clinicians and community members, an IRB is responsible for ensuring that all clinical trials at a particular institution are safe for patient participation.

Catherine Schultz, RN, who coordinates the day-to-day STAR activities at Rush, sees the participants as women who are taking an active role in their own health. "They're doing something, instead of just sitting there and wondering, 'Is this going to happen to me?'"

### Finding out about clinical trials

Kolschowsky has never been one just to sit back and wait for things to happen — especially when it comes to her own health. After reading a news story about STAR, she asked Wolter, whom she had seen previously at Rush, for more specifics about the trial.

Stories on TV or in the newspaper are two ways people find out about clinical trials at Rush. Others refer to web sites sponsored by reliable organizations such as a national asso-

ciation or a medical center, such as Rush, for information about clinical trials.

Physicians and nurses like Wolter and Schultz also meet with colleagues, attend health fairs and send information about studies to other medical practices. This kind of networking really paid off for James Bernhardt, who is alive today because his St. Louis doctor knew enough about the LVAD trial to send him to Rush.

As for Kolschowsky, after meeting with Schultz and then talking things over with her doctor and her husband, she was ready to go with STAR. "I decided this was something I wanted to do," she says. "Even if it doesn't help me, maybe it will help somebody else down the line." ■



Janet Wolter, MD (right), and Catherine Schultz, RN (left), discuss the STAR breast cancer prevention trial with a prospective participant. The trial enables healthy women to take an active role in their own health — and make life better for future generations.

### Modest origins

**F**it and healthy, Karen Kolschowsky lives in Oak Brook, Ill. What could she have in common with a British sailor sick with scurvy back in the 18th century?



By the end of the 15th century, scurvy was the major cause of illness and death on long sea voyages. In the mid-18th century, more British sailors lost their lives to the disease than died in warfare.

In May of 1747, Scottish physician James Lind, conducting an experiment on 12 scurvy-stricken sailors aboard the HMS Salisbury, discovered that the introduction of oranges and lemons into their diet could clear up most of the symptoms of the disease in as little as six days. This was, according to many experts, including Janet Wolter, MD, one of the first conclusive clinical trials ever conducted.

"Like STAR, Lind's work was a prevention trial, in a sense — 250 years ago," says Wolter.

Clinical research has come a long way since Lind's small shipboard experiment. The cures he was trying — his misfires included cider, vinegar, sea water and a mixture of herbs in barley water — were essentially risk-free: either they worked or they didn't. But with growing expertise in pharmacology come greater risks. "As soon as you start using drugs, there's always someone whose reaction won't be the beneficial one you envisioned," says Wolter. "You have to be as certain as possible that the intervention is a reasonable one, and not so toxic that the risk exceeds the benefit."

# Nurse Practitioners Extend



**Nurse practitioners such as Rush's Maureen Panares offer patients what physicians often cannot: access.**

By Laura Ramos

# Health Care's Reach

**A**t the two offices where she works, Maureen Panares, RN, ND, CFNP, helps support seven busy primary care physicians by seeing patients who require medical attention but do not require a visit with a doctor.

"Having a nurse practitioner as backup in a physician office is the wave of the future," says C. Anderson Hedberg, MD, associate professor of internal medicine at Rush and Panares's supervisor. As an internist, Hedberg has witnessed the considerable changes that have taken place in medical practice over the last four decades. "Since our practice is based in an academic medical center, we wanted to be involved in the changes that were happening up front and to help them develop."

The changes that Hedberg refers to are those being driven by that ever-present market force, managed care. In Chicago, more than 80 percent of patients are covered by managed care plans, and that number keeps growing. In areas that are dominated by these forces, physicians often contract with dozens of managed care groups and must provide services to a high volume of patients. Visits to general internists increased from 66 million in 1978 to 97 million in 1994, according to a study published in the *Archives of Family Medicine* last year.

"We have more things that we can do for patients than ever before, and yet doctors are supposed to see more and more patients to keep up with the managed care world," Hedberg says. "So, having a nurse practitioner on staff really helps us fill a need."

In such collaborative practices, physicians can spend more time with the patients who need it most, while nurse practitioners can handle the more routine services — sometimes more quickly than doctors.

Although the addition of nurse practitioners and other so-called physician extenders, such as physician assistants, is not common in many private practices, it is customary at many large clinics run by health maintenance organizations, or HMOs. Some have employed nurse practitioners as primary caregivers since the 1970s.



Maureen Panares, RN, ND, CFNP (above with C. Anderson Hedberg, MD), believes that many patients feel less intimidated with nurse practitioners and are more willing to ask them health care questions.

"Managed care has opened up considerable opportunities for nurse practitioners," says Linda Hollinger-Smith, PhD, RN, director of nursing for the Rush Primary Care Institute and assistant dean for external affairs at the Rush University College of Nursing. "And it is likely that even more avenues will open up for them in the future."

## What nurse practitioners do

A nurse practitioner is a registered nurse who has a master's or doctoral degree and clinical training in a specialty area. In the last five years, more nurse practitioners have become active in subspecialty areas, such as cardiology and pulmonology, and have taken an active role in caring for patients with chronic diseases. But primary care is the niche that most choose: About 40 percent of the 78,000 nurse practitioners in the workforce today practice in primary care, which means general internal medicine, pediatrics and family medicine, says Hollinger-Smith.

"Nurse practitioners can provide about 80 percent of the same primary care services that physicians do," she says. This includes basic health screening, routine physicals, basic immunizations and health education. Nurse practitioners also diagnose and treat a variety of episodic problems, including infections and injuries, and provide prenatal care and well-child care.

The scope of what nurse practitioners can do varies across the country, based on the rules of their state. In Illinois, the Nursing and Advanced Practice Nursing Act, which became effective on January 1, 2000, allows nurse practitioners to prescribe many medications through a written collaborative agreement with physician colleagues.

In rural areas, nurse practitioners are sometimes the main providers of primary health care services to needy patients.

## Filling the gap

When physician practices such as Hedberg's add a nurse practitioner to help ease the workload, they may find that their collaboration also improves the quality of care.

"There are so many things that doctors don't have time to do and have done a poor

**When physician practices such as Hedberg's add a nurse practitioner to help ease the workload, they may find that their collaboration also improves the quality of care.**

job of over the years," Hedberg says. "Patient education is one of them. This is especially true for diseases like diabetes, asthma and congestive heart failure. But a nurse practitioner is someone who has studied the disease and is able to spend the time teaching patients how to manage their condition."

At Hedberg's practice, for example, Panares is responsible for educating about 500 patients with diabetes. She teaches them how to control their weight, take their medication and plan their diet and exercise routines.

During these education sessions, some patients seem to "open up" to Panares more easily than they do to their physicians.

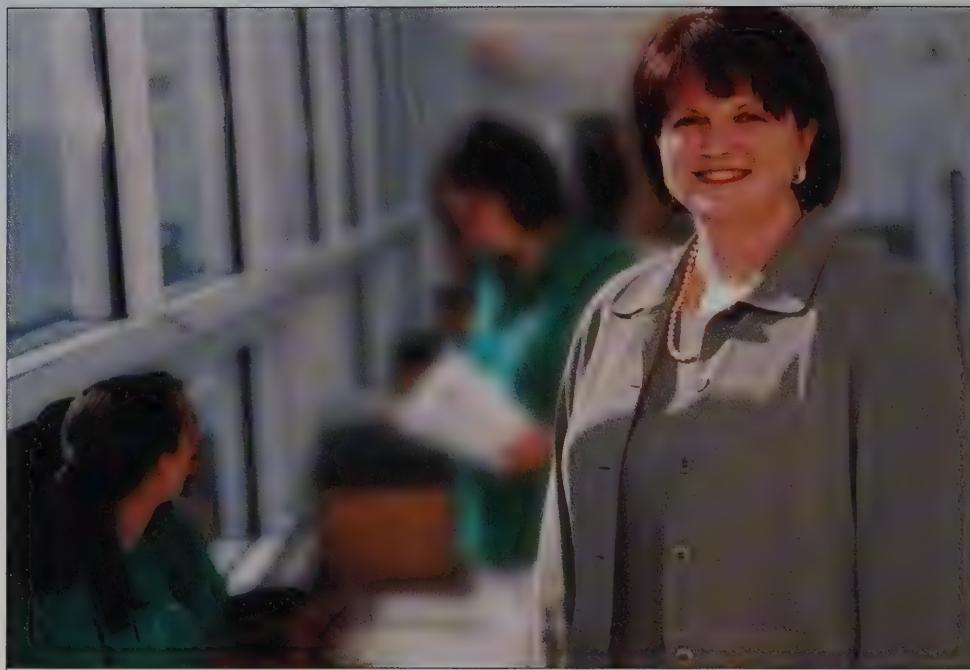
"Sometimes, I sense that the patients feel less intimidated with me and seem more open to asking just general questions," Panares says.

Bruce H. Huck, MD, an internist who works with Hedberg and Panares, believes nurse practitioners gain from the collaboration. "Nurse practitioners benefit from the association because physicians have more training and clinical experience than nurse practitioners, particularly in diseases that are more complex," Huck says.

#### **The balance**

For a collaboration between doctors and nurse practitioners to be effective — and to eliminate the risk that a practice would rely on its nurses inappropriately — each individual's role must be clear from the start. "Communication between doctors and nurse practitioners is so important," says Hedberg. "We rely on Maureen to inform us when she encounters a case that would be more appropriately handled by a physician." In addition, the practice always accommodates patients who prefer to see a physician.

While Huck favors having a nurse practitioner such as Panares on staff, he is concerned that market forces may lead to the inappropriate use of such professionals in the future. A nurse practitioner has the training and know how to provide many important services, but there are certain areas in which only a physician can meet the patient's needs. However, both groups can — and should — collaborate on patient care. "It just remains to be seen exactly what the equilibrium will be between the physician and the nurse practitioner," he says. ■



*According to Linda Hollinger-Smith, PhD, RN, director of nursing for the Rush Primary Care Institute and assistant dean for external affairs at the Rush University College of Nursing, more and more career opportunities are opening up for nurse practitioners, and schools such as Rush University are enhancing their curricula to prepare graduates.*

## **Training nurse practitioners at the College of Nursing**

**N**ursing schools across the country graduate 6,000 more nurse practitioners into the workplace every year.

To prepare graduates for the challenging health care environment that awaits them, educators at the Rush University College of Nursing have enhanced their curriculum to help students get the specialized knowledge and skills they need to succeed.

"We are taking the best of what managed care has to offer and are using it to prepare nurse practitioner graduates to work in a managed care setting," says Marilyn O'Rourke, RN, MSN, assistant professor in the Department of Community and Mental Health Nursing and coordinator of nurse practitioner faculty services.

The College of Nursing is one of three schools in Illinois recently awarded the Partnerships for Quality Education grant, funded by the Robert Wood Johnson Foundation. The grant is designed to enhance nurse practitioner students' exposure to managed care, much as medical residency training programs prepare physicians for these challenges.

Under the grant, the college will expand classroom content as well as clinical experiences related to managed care for nurse practitioner students. Initially, 15 primary care nurse practitioner students will be rotated to managed care sites that are part of Rush-Presbyterian-St. Luke's Health Associates, the physician-hospital organization. At the end of the grant period, all primary care nurse practitioner students will be assigned to a managed care site.

In addition, the College of Nursing was funded in 1999 by the Bureau of Health Professions, Health Resources and Services Administration to prepare adult nurse practitioners with expanded skills in managing common mental disorders in primary care populations. As principal investigator of this three-year federal grant, Linda Hollinger-Smith, PhD, RN, stresses the importance of interdisciplinary education and collaborative experience as key components of the program, which will equip nurse practitioners with the competencies to care for diverse groups of patients.

# Can doctors assign Gender?

**A high-profile case — in which a boy was raised as a girl — challenges the theory that environment dictates gender development. A Rush psychiatrist, however, says it isn't the theory that is flawed, but the experiment.**

**I**n the mid 1960s, Janet Reimer gave birth to two healthy identical twin boys: Bruce and Brian. But the family's happiness was short-lived — during a botched circumcision procedure, Bruce's penis was accidentally amputated. Without today's technology to reconstruct the penis, Bruce's parents were faced with a gut-wrenching decision — to raise Bruce as an "anatomically incorrect" boy or reassign Bruce's gender and raise him as a girl. Based on the reassurances of a noted psychologist, the Reimers opted to raise Bruce as Brenda. With the aid of surgery, hormone treatments and psychological therapy, Bruce spent his whole childhood living as a girl. And as an identical twin, Bruce offered the scientific community an ideal case study to evaluate the roles of nature versus nurture in gender development.

To the psychologist who recommended the gender reassignment and treated Brenda/Bruce, the transformation was considered a success until Brenda/Bruce reached the teen years. But today Reimer, now in his mid 30s, lives as a man and goes by the name David. He has a wife and is raising three children. In the recently published book, *As Nature Made Him: A Boy Who Was Made a Girl* by John Colapinto, Reimer describes a childhood in which he felt ill at ease and resisted attempts to make him more feminine.

This case has called into question the theory that gender identity is the product of environment, but Rush psychiatrist Arnold Goldberg, MD — who has written numerous articles and books on gender identity — tells RushRecord that he believes it's not the theory that is flawed but the experiment.

In an interview with Record reporter Patrick Kelly, Goldberg, a professor in the Department of Psychiatry at Rush and editorial board member of three academic journals, gives his view on gender development and talks about where he thinks the Reimer case went wrong.

"In the field of psychology, it is well accepted that there are distinctions between sex, gender and sexuality. Sex is the biological fact of having a penis or a vagina, gender is an emotional identity — whether someone feels and acts like a man or a woman — and sexual orientation is the role a person seeks to play in sexual relationships. These distinctions allow for the possibility, for instance, for a person to be male in sex, female in gender and heterosexual. We see that a person's sexual identity is based on more than physical characteristics — it involves how a person sees himself or herself and how society treats that person.

I believe the commonly held theory, that gender development begins in children when they react to their sex and social environment. When a little boy, for instance, discovers that his parents are of two different sexes, he identifies his body with his father's. And, as the boy emulates his father's behavior and shows himself to be masculine, the father and mother respond to his masculinity. With that responsiveness from his parents, the child feels completed, and he accepts those masculine characteristics as his own. The same holds true for girls and feminine characteristics.

The psychologist in the Reimer case set out to prove that this theory about gender development was correct. He believed that Reimer would grow up thinking he was a girl because, for one, he'd have the body of a girl and, two, everybody would be treating him like a girl. With these factors in place, any feminine behaviors and beliefs Reimer displayed would be met with approval from his parents, and he would come to accept those characteristics for himself.

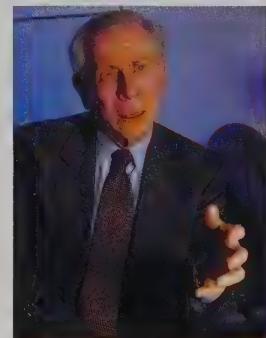
However, to ask the parents to raise him as a girl is asking them to put on a performance, an act, because in their hearts they knew he was not really a little girl. I suspect the parents kept the thought in the back of their minds that Brenda was really a little boy and

that they were merely pretending he was a little girl. If so, it is likely that they communicated in any number of ways, 'Even though we're calling you Brenda, we know in our hearts that you are Bruce.' It would follow that Reimer could not accept a feminine role because his parents could not. It was an act, and Reimer grew up knowing it was an act — that's why I think the gender reassignment failed. Social environment makes all the difference in the world.

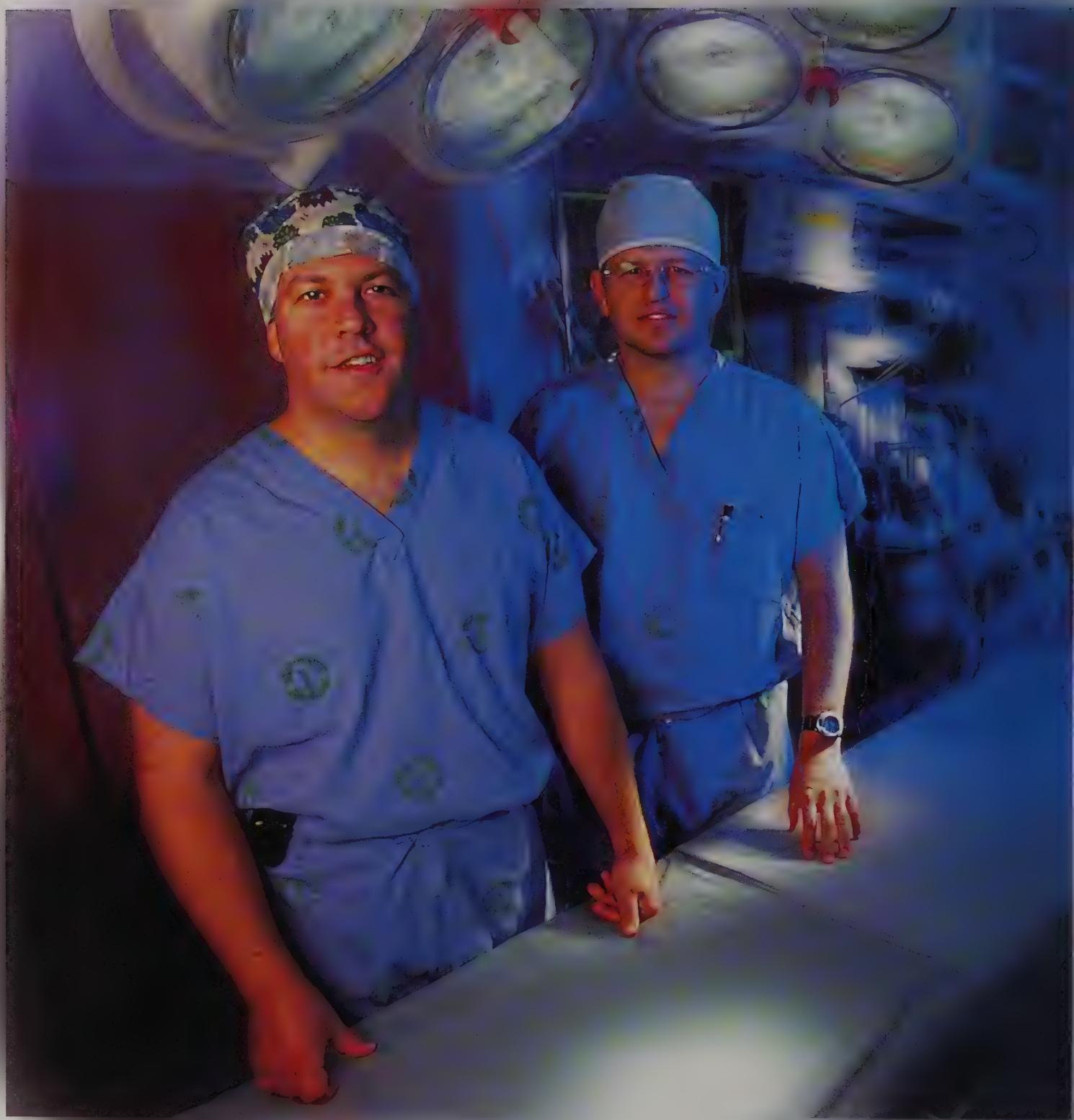
I think it was a mistake to suggest the experiment because Reimer's parents still saw him as a boy and would always see him as a boy. In my opinion, Reimer should have been raised as a boy, even with his disfigurement. The experiment was tainted and proves nothing about the development of gender. If anything, this case showed the need for a lot

more careful study about what gender really is. Doctors can alter a child's sex with surgery and hormones, but they can't change gender because there are certain environmental factors that cannot be controlled." ■

Interview by Patrick Kelly



Photography by Andrew Campbell



# Best of Both Worlds

**The lines between cardiology and cardiac surgery blur to create more treatment options for heart patients.**

*By Judy Grossman*

Cardiologist Jeffrey Snell, MD (left), and cardiac surgeon Robert March, MD, endorse a team approach to heart care that gives patients more and better treatment options.

**I**magine being told that there is a live grenade in your stomach, that it could explode at any time and that there is no way to remove or deactivate it.

That was the news delivered to George Kawa in May, a few days before his 82nd birthday. And while the grenade was just a metaphor, the actual problem — discovered by chance during a CT scan of Kawa's prostate — was no less terrifying. He had an abdominal aortic aneurysm.

Aneurysms are balloon-like bulges that form in the wall of an artery due to the pressure of blood flowing through a weakened area of the artery. This weakening is often caused by atherosclerosis, the build-up of fatty deposits on the artery walls. Aneurysms can form anywhere in the body, although the most common sites are the arteries that supply blood flow to the brain and the aorta, the main artery to the heart.

Abdominal aortic aneurysms are efficient and stealthy killers. When they rupture, they cause severe internal bleeding that is almost always fatal. Yet much of the time, as was the case with George Kawa, they produce no symptoms.

After the initial, shocking diagnosis, Kawa and his wife, Betty, went to see a cardiologist in their hometown of Elgin, Ill. They were told that although most abdominal aortic aneurysms can be successfully repaired with surgery, George was too old and overweight to be a good candidate for the procedure. His age and weight made him susceptible to heart, lung and kidney complications and to infection from the large incision required to access the aneurysm. The doctor felt there was a good chance George wouldn't have survived the trauma of surgery — and he knew of no alternative treatments.

"The doctor didn't even try to reassure me," says Kawa, a retired



Just two days after having his abdominal aortic aneurysm repaired at Rush, a relieved George Kawa (shown here with wife Betty) returned to his Elgin home.



Robert March, MD (center), and his colleagues have worked to develop less invasive surgical procedures.

electrician. "He said, 'The only thing you can expect is that it will blow.' I knew it was going to kill me, I just didn't know when."

Unwilling to accept that there was no hope, the Kawas sought a second opinion at Rush, where cardiologist Jeffrey Snell, MD, told them about a relatively new, less invasive procedure for repairing abdominal aortic aneurysms. The U.S. Food and Drug Administration had approved the procedure in November 1999. But some doctors — including George's cardiologist — weren't yet aware of it.

#### A new approach

The procedure, called endovascular stent grafting, combines surgical and catheter-based techniques.

In the traditional surgery, done through a large incision in the

#### Glossary of heart terms

**Abdominal Aortic Aneurysm:** A balloon-like swelling in the wall of the abdominal aorta that occurs due to the pressure of blood flowing through a weakened area of the artery. Often symptomless, but symptoms may include hoarseness, difficulty swallowing, chest pain and backache. If untreated, most abdominal aortic aneurysms will continue to enlarge and will eventually rupture, causing often-fatal blood loss. Repair is recommended for aneurysms that are 6 cm or larger.

**Aorta:** The body's main artery, which originates in the upper surface of the heart's left pumping chamber—the left ventricle—and ends in the abdominal area, where it branches off into the two common iliac arteries. The aorta is thick-walled and large in diameter (about 1 inch, or 2.5 cm at its origin) to cope with the high pressure and large volume of blood that passes through it.

**Balloon angioplasty:** A nonsurgical technique for treating narrowing or blockage of a blood vessel by inserting a balloon-tipped catheter into the constricted area to widen it.

**Cardiac catheterization:** The nonsurgical insertion of a catheter into any chamber of the heart or large blood vessels for diagnosis, assessment of abnormalities, interventional treatment or evaluation of the effects of a disease on the heart.

abdomen, the aneurysm is actually cut out of the artery and a dacron tube is attached at the cut ends, filling the space where the aneurysm used to be. It's like replacing a defective pipe with a new one.

With the stent graft procedure, done through two small incisions in the groin, the aneurysm is not removed at all. Instead, a stent graft — a woven polyester tube externally supported by a metal web — is placed inside the aorta and runs directly through the aneurysm, providing a new path for blood to flow (see illustration on page 17). The walls of the stent graft function like a dam, keeping blood from pouring into the balloon-like sack. Constant blood flow into the aneurysm is what causes it to expand to the point where it ruptures.

The entire procedure lasts about four hours, and recovery time is minimal. Patients leave the hospital within a day or two and are back on their feet almost immediately.

"We're very excited about the stent graft system," says Rush cardiac surgeon Robert March, MD, who teamed with Snell to treat Kawa. "When we have patients who are at very high risk for the standard surgery, we can now do the low-risk procedure instead."

Two days after the procedure, a very relieved George Kawa left the hospital. "For the first two days, every muscle in my body was sore, but after that I felt just great," he says, grinning. "I've had a knee replaced, and believe me, that knee replacement was 20 times worse than this."

#### We've come a long way

Kawa's case shows how the rapid development of catheter-based technology has blurred the once definitive line between what surgeons can do and what cardiologists can do. This has led to the creation of "less invasive" and "hybrid" treatments that benefit more patients than ever before, including many like George Kawa who are elderly or frail and would once have been considered high-risk or untreatable.

Until recently, catheter-based repairs and minimally invasive surgical procedures were used independently to treat patients. A patient may have had an angioplasty and a coronary bypass, but not during the same hospital stay as part of a planned treatment strategy.

**Catheter:** A tube passed through the body for evacuating fluids or injecting them into body cavities, such as the heart. It may be made of elastic, elastic web, rubber, glass, metal or plastic. Balloon catheters, used for unclogging blocked blood vessels, have a balloon at the tip that can be expanded using air, saline or contrast dyes.

**Coronary bypass surgery:** An operation in which an artery or vein from another part of the body (or, in some cases, synthetic tubing) is used to create a new route, or "bypass," around a blocked artery.

**Heart-lung machine:** A mechanical device that maintains the functions of the heart and lungs while either or both are unable to function adequately. The device pumps, oxygenates and removes carbon dioxide from the blood. The function of the heart-lung machine is also called heart-lung bypass.

**Off-pump cardiopulmonary bypass:** Bypass surgery performed without hooking the patient up to a heart-lung machine.

**Stent:** Any material or device used to hold tissue in place or to provide support while healing is taking place. Coronary stents, usually made of stainless steel wire, are used to prevent re-narrowing in arteries following bypass surgery or angioplasty.

# "When you become confident that you can do an operation as effectively and safely as you can in the standard fashion, but with less trauma to the patient, that's the right reason to do it."

Endovascular stent grafting exemplifies a growing trend in cardiovascular care: cardiologists and surgeons collaborating on all decisions, treatments and the tracking of data to create combined therapeutic approaches that are specifically tailored to each individual case. This type of "designer revascularization" gives patients the best of all worlds.

"It's a team approach, where you have several specialists looking at a particular patient, and the therapy is chosen based on which procedures are the most cost effective and carry the fewest potential complications," March says.

Most of these developments have taken place within the last half-century. Before the advent of cardiac catheterization in the 1950s, there was no way to diagnose many heart problems. And even when problems could be detected, there was no effective way to treat them. Some medical therapies had been developed — nitroglycerine to alleviate chest pain, for instance — but open heart surgery and catheter-based procedures capable of unclogging blocked arteries, repairing damaged valves, patching holes in the heart and treating other heart defects did not yet exist.

Cardiac surgery as we know it wasn't widely available until the mid-1970s, when the heart-lung machine became reliable enough for general use and surgeons could finally stop the heart long enough to operate safely. Over the next 20 years, many surgical procedures became more routine, allowing for the effective treatment of many problems that used to be irreparable.

Meanwhile, cardiologists had begun to explore the possibilities of using catheters not just to diagnose problems, but to treat them. The first balloon-tipped catheter was created in 1975, and the first balloon angioplasty was performed two years later, revolutionizing the role of the cardiologist in treating coronary artery disease.

Up to that point, cardiologists prescribed medications, recommended changes in diet or physical activity, or referred their patients to cardiovascular surgeons if the problem required surgical repair. Angioplasty opened the door for cardiologists to venture inside the human body to treat problems — territory previously occupied exclusively by surgeons. This new approach became known as interventional cardiology.

At first, when the technology was new and the equipment was — compared to what it is today — primitive and clunky, cardiologists could repair only a small number of defects. The catheters, which were as wide as a pencil and not very flexible, could not be used to treat smaller blood vessels or blockages that were not easily accessible.

"Still, you said to yourself, if we can get to this stage, we probably will be able to go further," says Joseph E. Parrillo, MD, cardiologist and co-director of the Rush Heart Institute.

And they have. Today's wire-thin catheters are more flexible and maneuverable and are capable of fitting inside even the smallest blood vessels, such as those of infants. As the catheters became more sophisti-

cated, so did the imaging techniques, devices and drug therapies used in the cath lab. This evolution made it possible for cardiologists to begin treating many problems that once required surgery.

"All interventional procedures started as surgical procedures, and then at some point an attempt was made to simplify them and move them into the cath lab in order to give patients a quicker recovery time, less pain and less risk of complications," Snell says.

## From the OR to the cath lab

For instance, coronary bypass surgery, in which a vein from the leg or an artery from the chest is used to re-route blood flow, was the first technique developed to address arteries clogged by fatty deposits. By 1997, balloon angioplasty had become the most common medical intervention in the world, and it is now a standard for treating blocked arteries.

Instead of "bypassing" the blockage, angioplasty restores blood flow through the artery. A balloon-tipped catheter is threaded up through the blockage and the balloon is inflated and deflated a number of times to flatten the fatty deposits against the arterial wall.

Bypass surgery is now generally reserved for those whose arteries cannot be opened with angioplasty, who have extensive blockages, or whose arteries repeatedly become re-narrowed after angioplasty.

And that, too, may change in the future, as cardiologists continue to improve and refine angioplasty techniques. One of the biggest drawbacks to angioplasty has been re-narrowing, which can occur when scar tissue forms on the artery walls. Stents are now routinely used to reinforce arteries and keep them from recoiling after the procedure. A stent doesn't prevent scar tissue formation; in fact, it may cause additional scarring. But in most patients, the angioplasty widens the passageway within the artery enough to accommodate the extra scar tissue growth.

In addition to using stents — which reduce the risk of re-narrowing by 50 percent over angioplasty alone — Rush has been a leader in the Midwest in developing and testing an experimental radiation

therapy designed to keep scar tissue cells from reproducing.

Working in collaboration with Rush radiation oncologist Cam Nguyen, MD, and medical physicist James Chu, PhD, the cardiologist places a catheter filled with tiny radioactive seeds into the stented artery for several minutes after an angioplasty. The radiation emitted by the seeds — a lower level than you would get from a chest X-ray — targets scar tissue cells without affecting healthy tissue.

Follow-up exams have shown that of the people treated during the initial phase of the trial, 66 percent have

**Illustration:** The stent graft is made of a cloth-like material supported by a metal stent — a wire mesh — to make it rigid. It attaches to the inside of the aorta, above and below the aneurysm, so the blood flows through the stent-graft tube instead of into the aneurysm.

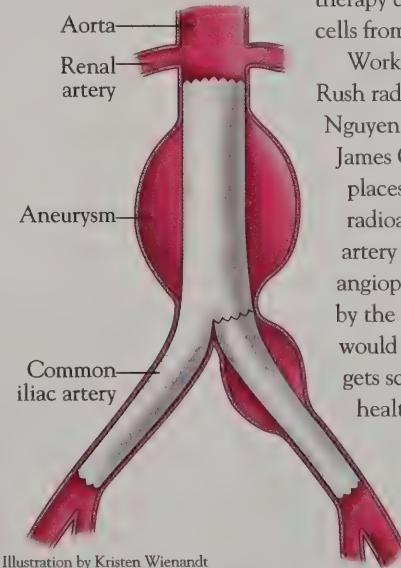
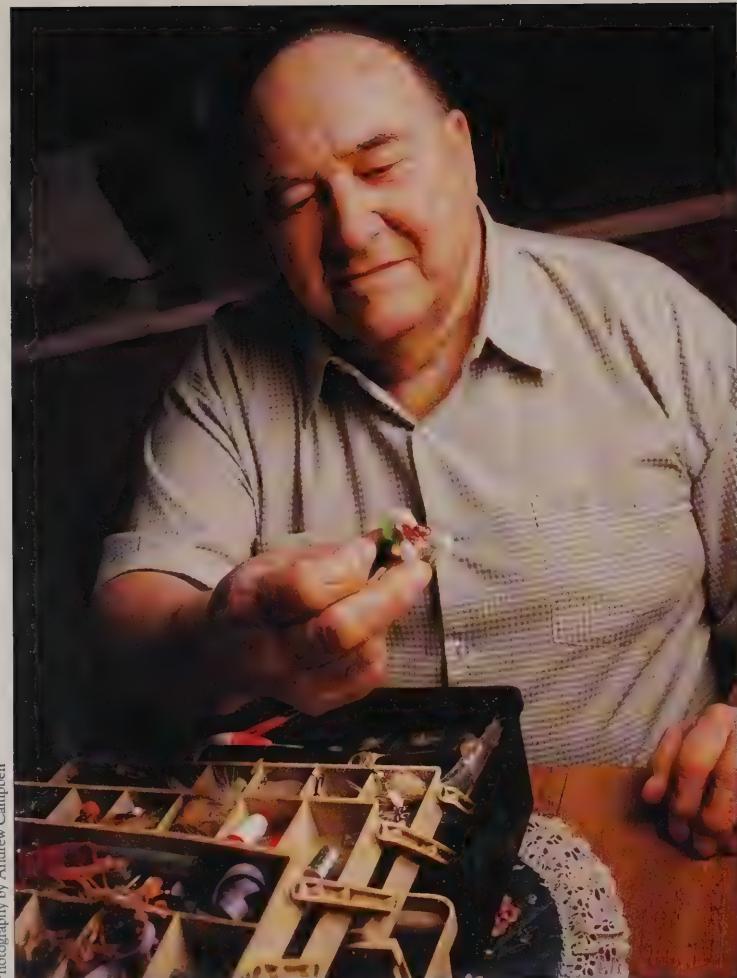


Illustration by Kristen Wienandt



Following treatment for his abdominal aortic aneurysm, George Kawa has returned to his life-long passion — fishing.

not had any re-narrowing. Among the many success stories is Rush patient Barbara Turner, who in May 1998 became the first Chicagoan to undergo the radiation therapy. Today, Turner's artery — which was almost completely obstructed before angioplasty — remains blockage-free.

"We've had wonderful success with this approach so far. The radiation seems to completely eliminate scar formation in many patients," says Gary L. Schaer, MD, director of the Rush Cardiac Catheterization Laboratory, who along with Snell is co-principal investigator of the Rush trial. "Nothing is proven yet. But now that we have this therapy, it may be that in the majority of patients, when we treat an artery once with angioplasty it won't re-block, and the patient will never need a second angioplasty or a bypass."

#### **Simplifying surgery**

As cardiologists have moved forward, their surgical colleagues have kept pace by working to develop procedures that are less invasive but equally effective. "Once surgery became a stable routine, with an established set of procedures for each type of repair, the next step was to try to gain the benefit of minimally invasive approaches — the quicker recovery, shorter hospital stays, lower costs, less risk of infection, less trauma to the body and smaller scars," March says.

## **As cardiologists have moved forward, their surgical colleagues have kept pace by working to develop procedures that are less invasive but equally effective.**

The term "minimally invasive" is used to describe procedures performed through several small incisions rather than one large incision. It also refers to "off-pump" surgery, or heart surgery performed without hooking the patient up to a heart-lung machine.

Because of the potential reduction in cost, postoperative complications, healing time and scarring, the use of minimally invasive techniques has increased tremendously in the last five years. And the development of devices like the Medtronic Octopus, which uses suction cups to hold a small portion of the heart still while the surgeon operates, has enabled more surgical precision.

But as exciting as the concept is, Rush cardiac surgeon Verdi J. DiSesa, MD, co-director of the Rush Heart Institute, says that traditional surgery is still the best treatment option in many cases, even when a less invasive alternative is available. "Minimally invasive procedures should be done only if the patient will truly benefit," he says. "When you become confident that you can do an operation as effectively and safely as you can in the standard fashion, but with less trauma to the patient, that's the right reason to do it."

Off-pump bypass surgery, in particular, isn't recommended for patients who are young and healthy and can tolerate the heart-lung machine. Because even with all of the new technology and the increasing skill of surgeons, it is still more difficult to operate on a beating heart, and the long-term effectiveness of off-pump bypass has not yet been proven.

For now, it is the highest-risk patients — the elderly and people with significant neurological, renal or pulmonary complications — who are benefiting the most from the increasing availability of less invasive surgical approaches. They may now be treatable, where only a decade or two ago they would have had no options.

#### **Treating the untreatable**

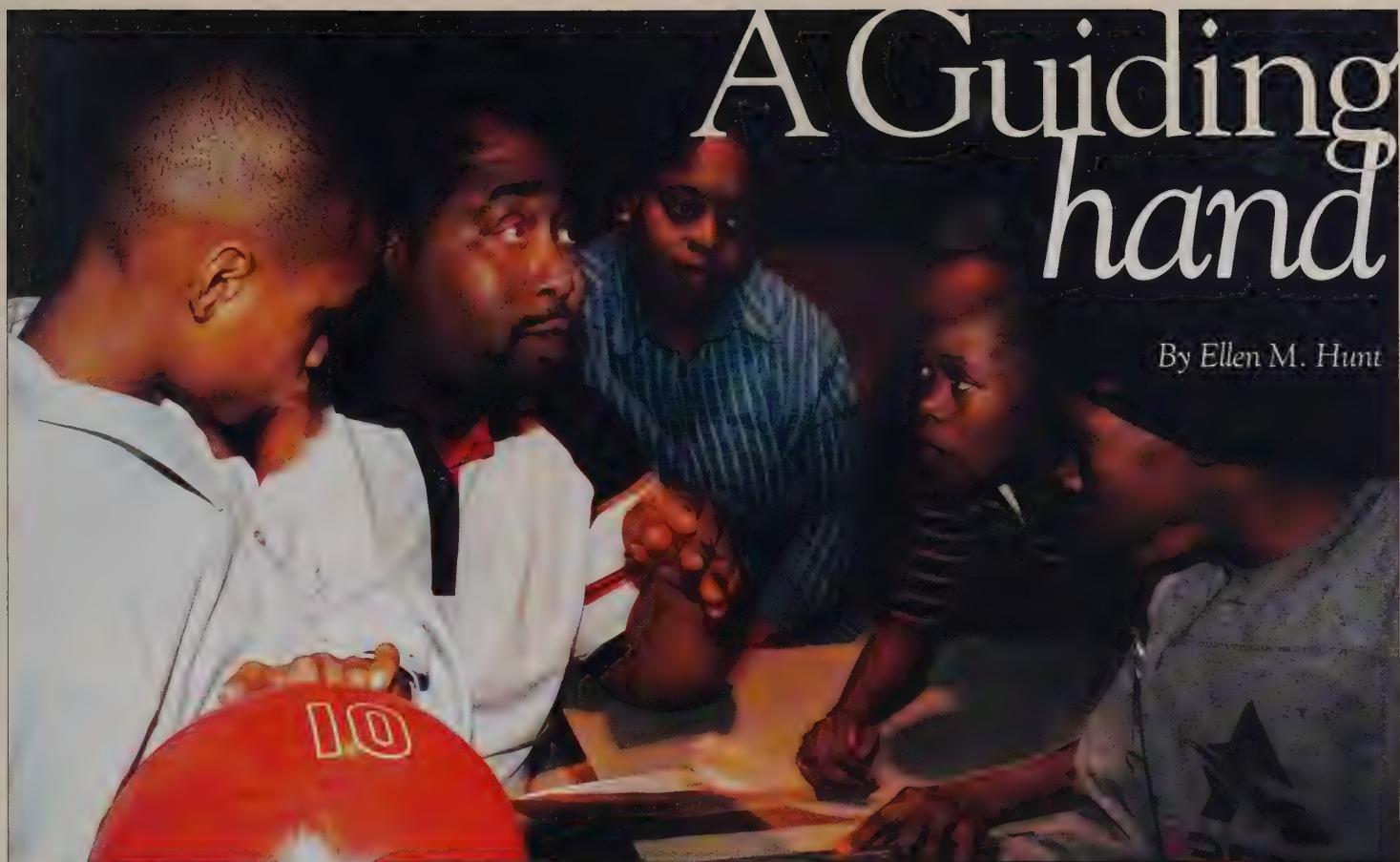
"The bottom line is that we've gotten better at taking care of the whole spectrum of heart patients," DiSesa says. "So patients who 25 years ago would have been high-risk are routine for us today, and the high-risk patient of today is someone who would have been untreatable 25 years ago."

George Kawa knows, all too well, what it feels like to be "untreatable." Were it not for the development of catheter-based procedures and minimally invasive surgery — and the marriage of both to create endovascular stent grafting — his prognosis would have been grim. He will have to be monitored more closely than patients who have the traditional surgery, because the longevity of the stent grafts is not yet known.

But in the meantime, he's no longer sitting around wondering when the grenade in his belly will go off. He is rummaging through his tackle box, sorting lures, anticipating his first fishing trip in more than a year. ■

# A Guiding hand

By Ellen M. Hunt



For children growing up in the Rockwell Gardens housing complex on Chicago's Near West Side, the facts of life include gangs, guns and drugs. The retail stores, movie theaters and other community services common in middle-class neighborhoods are either missing or falling apart. As the children look around for role models, they see adults use shouting and fighting — even shooting each other — as the way to settle problems.

**A** program run by the Rush Institute for Mental Well-Being is taking steps to show a few boys and girls an alternative to the life of violence and chaos around them. Called the Rockwell-Grant Youth Project, the community-based program is designed to help children learn positive ways to behave and to improve their school performance.

About 15 third- through seventh-grade students at Ulysses S. Grant Community Academy elementary school, near the housing development, participate in the program, which receives support from the NMC Logan Gift Fund, a private foundation. They learn how to sit quietly to do homework, settle conflict without fighting and generally develop self-control and self-respect. The program also

gives them a taste of some of the pleasures of childhood that middle-class children take for granted, such as a trip to the Field Museum, an afternoon at a bowling alley or a swim in Lake Michigan.

According to Sandra Rigsbee, MSW, the program's director, the project grew out of her interest in depression and suicide in children of poverty. "We found that our questionnaires for evaluating children at risk for suicide were culturally biased and in some significant respects irrelevant to inner-city African-American kids," says Rigsbee. "Then Jan Fawcett, MD, director of the Rush Institute for Mental Well-Being, was approached about developing an intervention program with high-risk kids in the city, and the program was born."



*Top:* The kids in the Rockwell-Grant Youth Project enjoy many activities outside the classroom, including bowling and going to museums. *Above and below:* Certificates recognizing their accomplishments provide kids the encouragement they need to excel.

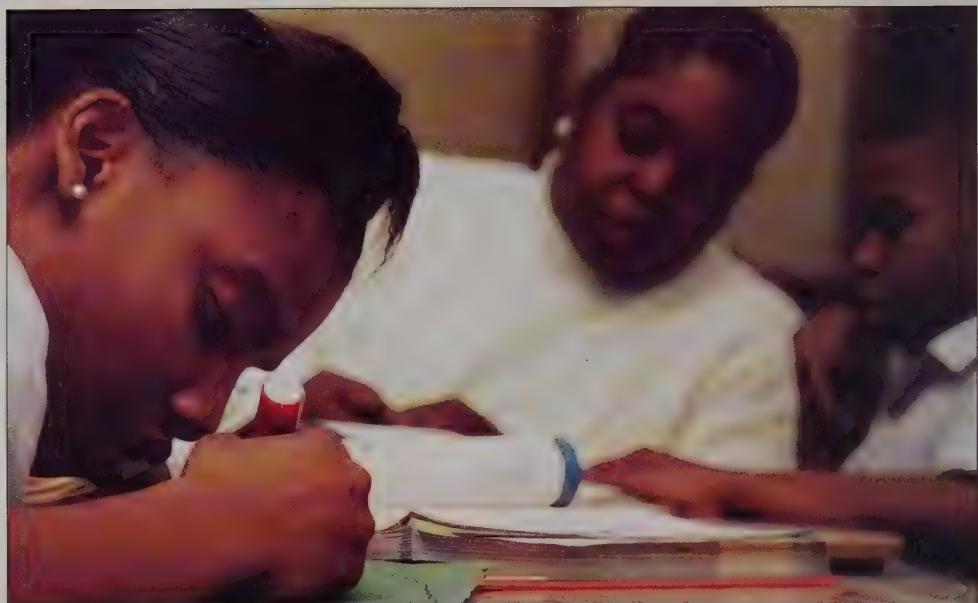


"These kids see all of the negatives: alcohol, drugs, family abuse and prostitution," says Ken Baker, the program's first in-school coordinator, who now teaches special education classes full-time at Grant. "Most of these kids have never heard a male talk to them calmly. I always say to them, 'You don't want anybody to feel sorry for you, you want people to understand and respect you.' They need to learn respect, social skills and, most of all, that somebody cares about them."

Each after-school session begins with quiet time, with the kids doing assignments that are on the chalk board. One week the words on the board were "trustworthiness" and "responsibility." Kids have to define them, spell them and use them in a sentence.

Rigsbee works with the parents and families and now runs the after-school program as well, along with two former Rockwell Gardens residents who are employed as teacher's aides, helping kids with homework or working with them on the computers either purchased with project funds or donated — some by Rush and some by individual donors.

"The kids love the computers," says Rigsbee. "They used to destroy everything. Now they take very good care of the computers."



Shaquitta Brinson (left) hones her artistic abilities as Shirley Fitzgerald (right), a teacher, helps another student with his homework.

In the program's three years, more than 25 students have participated, many for the whole three years. Another 15 or 20 students are on a formal waiting list. All of the students, ages 9 to 14, were chosen because they are considered at special risk due to academic or family behavior problems. But, says Rigsbee, in a poor West Side neighborhood that description fits most people.

"Who's most at risk becomes almost arbitrary because they're all at risk," says Rigsbee. "When we started this program, the assistant principal identified the kids. She took either the families that were the largest and most in need or the most disturbed. But the kids are not necessarily in big trouble."

The students participate in after-school homework sessions followed by structured recreation time Monday through Thursday and have monthly field trips to bowling alleys, movie houses or museums. Other students and their families receive counseling for disciplinary and academic problems or are referred to psychiatric or community agencies for further help.



Ken Baker (right), Rockwell-Grant Youth Project coordinator, believes that the after-school program offers kids the chance to learn respect and social skills in a caring environment.

Many of the children have had little or no structure in their days and may have spent days wandering the school hallways or suspended from school. They dealt with problems by yelling and fighting with one another and with authority figures. "They use insults and shouting and quite often even fighting to settle disagreements," says Rigsbee. "We try to show them another way."

Since the program began, the percentage of students promoted to the next higher grade has increased from 66 percent to 85 percent. In addition, suspensions for behavior problems have decreased, along with physical and verbal aggressiveness. For instance, in the beginning the students were routinely being thrown out of places like Navy Pier for loud and unruly behavior.

Now they enjoy trips to the Museum of Science and Industry or to a movie at the new Lawndale Cineplex Theater, about 2 miles from school.

"Now, they go to theaters and are very appropriate," says Rigsbee. "They go to museums, pay attention and don't misbehave."

At age 9, Mildred was a well-behaved child and well cared for, but she was a year behind academically. With encouragement from teachers, she used the program to start moving forward, says Rigsbee. "She passed tests at the beginning of the school year to pass into fourth grade. Then she went to summer school, passed fourth grade tests, went to fifth grade mid year, and is now in sixth grade, which is where she should be," Rigsbee says.

**"These kids see all of the negative: alcohol, drugs, family abuse and prostitution. Most of these kids have never heard a male talk to them calmly. They need to learn respect, social skills and, most of all, that somebody cares about them."**

Unfortunately, Mildred's baby-sitting job means she is now only an occasional visitor to the after-school program.

Professional tutors from the graduate program in special education at the University of Illinois at Chicago tutor the students who need help. And students who appear to have learning disabilities are tested at UIC at no charge.

Rigsbee will be publishing her findings from the program. She hopes that what she has learned will help others decrease the risk of antisocial behaviors, including drug and alcohol abuse, delinquency and school failure. Using her experience at Grant, she is developing a mental-health component for a new school-based health center at Frazier

Elementary School, which is run by the Department of Preventive Medicine at Rush. The program at the Frazier health center, in North Lawndale, will educate teachers on mental health issues.

"And we'll be working with parents, we hope," says Rigsbee. "We really hope."

Working with parents is essential to helping their children by breaking the cycle of violence, says Rigsbee. "Violence is routine to these kids," she says. "For instance, one day at school a woman was shot and an ambulance came. The kids were so used to this that they didn't hide inside where it was safe, they ran out to see what happened. Their comment when they came back was, 'Oh, it was just a domestic situation.'"

**Since the program began, the percentage of students promoted to the next higher grade has increased from 66% to 85%.**

"That's how common violence is," she says. "There's domestic fighting, gang fighting. Everyone has seen at least one person shot. One child saw his own father shot. These kids need direct mental health services for the trauma that they experience in their lives. We need to have more of these programs, because otherwise these kids don't have much of a chance." ■

### **Faces of the Rockwell-Grant Youth Project**



Latoya Pierce, now in 7th grade, has made tremendous strides academically since joining the program.



Shaday Franklin (right) entertains her classmates with her singing and keeps a watchful eye over her cousin, Ashawna (left).



Jaslyne Brinson, nicknamed J-rock, exhibits her artistic flair by drawing pictures for her friends.



Ruben Ivy is a conscientious student who recently won accolades from his teachers for a story he wrote about his grandmother.

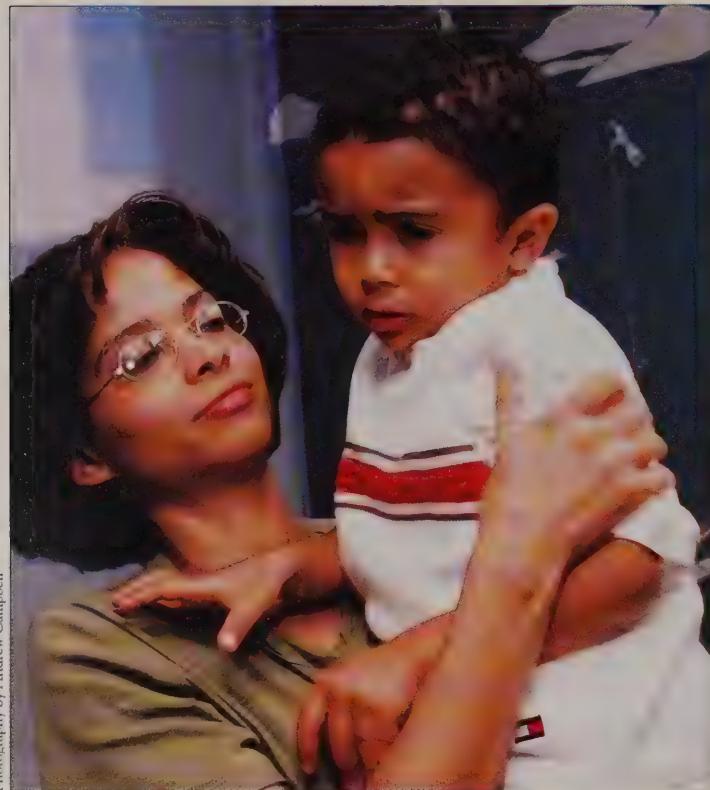


Elijah Green loves animals, especially the pet iguana he got for his birthday.



Mildred Moore went through third grade twice, but with hard work and encouragement she managed to catch up in school.

## Researchers explore possible link between antibiotics and autism



Children with autism, such as three-year-old Jeremy DeJoie (pictured with his mother, Debra Draper), suffer from behavior and communication problems.

**R**esearchers at Rush have recently raised an intriguing possibility — that there may be a connection between gastrointestinal infections and some cases of late-onset autism. It is a theory that may lead researchers to one day find ways to prevent or successfully treat autism.

Autism, which affects an estimated 1 in 150 children and typically occurs before two years of age, is marked by behavior and communication problems that can impair language and social development, limit attention span and enhance aggressiveness. The cause of the disorder is unknown, and there is no effective treatment.

But a study, led by Richard H. Sandler, MD, director of pediatric gastroenterology at Rush Children's Hospital, has shed new light on this mysterious syndrome. The study showed that when certain children with autism were treated with the antibiotic vancomycin, most experienced short-term

produced by these new bacteria cause neurological symptoms? If so, the team speculated, then using other antibiotics to fight the toxin-producing bacteria might improve autistic symptoms.

In the study, 9 of 11 autistic children treated with vancomycin experienced improved cognitive function, behavior and social skills. Unfortunately, regression occurred in all of the children after the drug was stopped, and all but one ultimately regressed to pre-treatment status.

"Seeing most of these children appar-

improvement of their symptoms.

The study was prompted by the observations of a mother, Ellen Bolte, who noticed that autistic symptoms began in her son after he underwent repeated antibiotic therapy to treat ear infections. Based on Bolte's speculation that her son's autism may be linked to the antibiotics, Sandler and his colleagues posed the following questions: Could it be that repeated antibiotic use disturbed the bacteria normally found in the large intestine, allowing other types of bacteria to take hold? And could toxins

ently improve significantly, if temporarily, was very exciting," Sandler says. "But the work needs to be repeated by others before any conclusions can be drawn." He suggests that the next step, besides repeating clinical studies, may be trying to figure out why these effects have been observed.

Then there is the concern that overuse of vancomycin — a powerful antibiotic in the drug arsenal — may spawn bacteria that are resistant to it, rendering it useless in treating more serious infections. "We need to determine whether there are better drugs for this treatment," Sandler says, "and also how long therapy should be continued, and what can be done to prevent relapse once treatment is stopped."

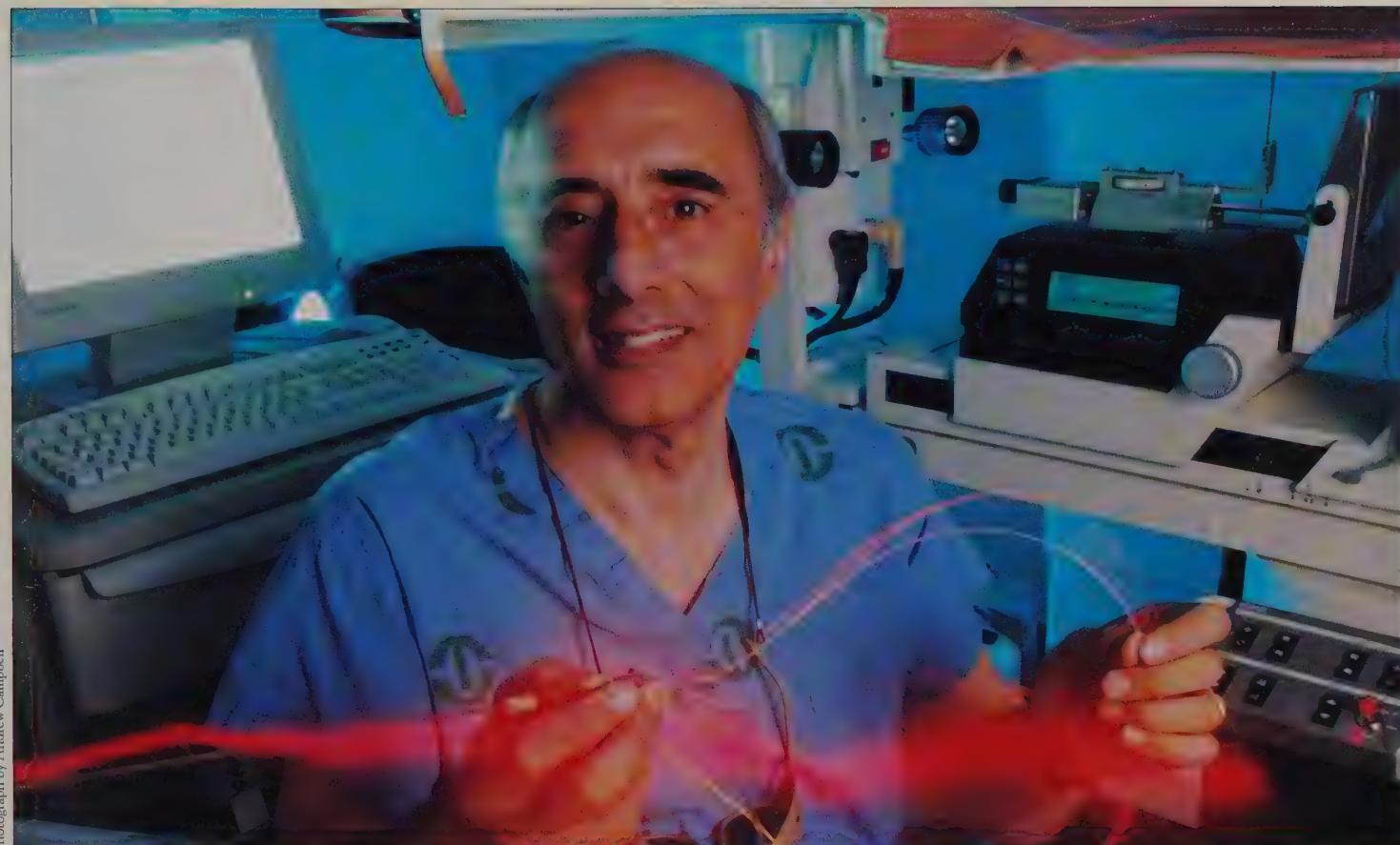
Still, the door has been opened for further exploration of a possible gastrointestinal tract-brain connection in certain children with autism. "This is uncharted territory," Sandler says. "To have these bits of information about a possible connection that could lead to effective treatment in at least a subset of kids is, I think, worthy of attention."

— Judy Grossman



According to Richard Sandler, MD, there may be a link between gastrointestinal infections and some cases of late-onset autism.

## Treating breast cancer tumors without surgery



Photograph by Andrew Campbell

Kambiz Dowlat, MD, displays a revolutionary laser that is being tested for treating small breast cancer tumors as an alternative to lumpectomy. Dowlat pioneered the treatment at Rush.

**A** new procedure currently being tested at Rush may enable doctors to treat women with small cancer tumors in the breast nonsurgically and eliminate the need for a lumpectomy. This promising treatment, called interstitial laser therapy, uses laser energy delivered through a needle to destroy breast tumors that are 1 cm in diameter — roughly the size of a dime — or smaller.

Improvements in breast imaging have made it possible for doctors to find and diagnose breast cancer at an early stage. "As more women have annual mammograms, we are able to detect these tumors when they are very small," says surgeon Kambiz Dowlat, MD, who pioneered the laser treatment at Rush. "We should therefore offer a treatment that is aesthetically more pleasing and yet equally as effective as lumpectomy."

In a lumpectomy, the surgeon removes the tumor and a very small portion of the surrounding tissue. But although the procedure preserves the breast, it is painful and leaves scars.

In the nonsurgical laser procedure, the patient lies face down on a special x-ray table that gives the doctor a precise view of the tumor. The doctor inserts a hollow laser needle into the tumor and places beside it a second needle that acts as a thermometer. Laser energy is then delivered through a thin fiber inside the laser needle until the center of the tumor heats to boiling point, 100°C, and the temperature around the tumor reaches 60°C — hot enough to destroy all cancer cells.

The entire procedure, done under local anesthesia, takes an hour, and the patient is kept under observation for another hour before leaving the hospital. "There are many benefits to using this technique," Dowlat says. "Patients experience less pain than if they were treated surgically, they do not have to be hospitalized, they do not face the emotional or physical trauma associated with invasive surgery and they have a shorter recovery period."

In phase one of the trial, Dowlat treated 42 women using the laser procedure. Because the laser is experimental, he also performed a follow-up lumpectomy so the pathologist could confirm that the tumor had been completely destroyed. Once it is proven that the laser is 100 percent effective — probably within the next year and a half — Dowlat hopes to begin phase two, in which he will perform the laser treatments without follow-up surgery. He will then compare laser therapy and lumpectomy, with both groups of patients receiving radiation to the breast afterwards.

Funding for Dowlat's study is being provided by the Mary Kay Ash Charitable Foundation and the Bears Care Foundation.

— Judy Grossman

For more information about the trial, call (312) 563-2090.

## Alternative to traditional knee surgery offers many benefits

**T**raditional knee replacement surgery is an ordeal, requiring an 18-inch-long incision, a lengthy hospital stay, months of physical therapy—and only mixed results when it comes to improving mobility.

A new procedure called minimally invasive unicompartmental knee replacement—available only at Rush and its

affiliate Oak Park Hospital—reduces the incision size to a mere three inches, cuts the hospital stay down to about a day and improves a patient's mobility over both the short term and long term.

"This is important as the baby boomer population is growing older, living longer and wanting to keep vigorously active as they move through their 50s, 60s and 70s," says Rush orthopedic surgeon Mitchell Sheinkop, MD, who introduced the minimally invasive procedure to the United States in April. "Patients who receive the 'uni' knee replacement through the small incision can play doubles tennis, ride a bicycle, bowl, dance and in most cases ski."

Unicompartmental knee replacement is not for people with rheumatoid arthritis. But of the 300,000 men and women who have knee replacement surgery each year, about 30 to 40 percent have

arthritis that affects only one part of the knee, and can benefit from the unicompartmental replacement. Many of these individuals have degenerative or osteoarthritis as a result of a previous fracture or injury.

Under study at Rush since the early 1980s, unicompartmental surgery replaces only the affected part of the knee with a metal and polyethylene prosthesis that mimics the gliding and cushioning action of bone and cartilage. Sheinkop, borrowing from the techniques of colleagues in orthopedic sports medicine, worked with Zimmer, Inc., of Warsaw, Ind., to develop the prosthesis and precision instrumentation that permit the new minimally invasive approach.

Newell Crockett, 77, of Crystal Lake, Ill., was the fourth person to have the new procedure performed. He left Rush 36 hours after having undergone the procedure and 3 weeks later he was playing a full 18 holes of golf.

— Sean Carr



Mitchell Sheinkop, MD, introduced minimally invasive unicompartmental knee replacement to the U.S.

Photograph by Andrew Campbell

## Vitamin E may help reduce cognitive decline among older people

**A**s an antioxidant, vitamin E defends cells against the natural damage caused by oxygen-related chemicals as the body ages. Recently, research has shown that the vitamin, which is present in such foods as nuts, salad dressing and mayonnaise, may prevent some types of heart disease. And, on average, people taking a vitamin E supplement did not experience considerable decline. But that's not the only role that vitamin E is suspected to play. According to Rush researchers, there may be a relationship between vitamin E and the effects of the aging process on the brain as well.

To determine if there is a connection between vitamin E intake and the cognitive decline that accompanies aging, Martha Clare Morris, ScD, assistant professor in the Department of Internal Medicine, undertook a study involving more than 6,000 participants who

were 65 or older. Over a three-year period, participants were regularly evaluated with a series of questionnaires and performance tests designed to measure their cognitive abilities and dietary habits.

The preliminary results of the study showed that people with a high intake of vitamin E suffered the least amount of cognitive decline.

Morris is hopeful that a close look at diet and its relationship to how well the mind works will shed light on possible ways to prevent Alzheimer's disease.

"Right now, there is no cure for Alzheimer's disease," Morris says. "But the idea that, by modifying our diets, we may be able to prevent something from happening, rather than waiting until people get the disease and have to take drugs or undergo surgery, is very exciting."

It is important to note, though, that an overabundance of vitamin supplements or



vitamins in combination with certain medications may be more harmful than helpful, Morris says. Anyone considering taking vitamin supplements should consult a physician first.

— Melanie Ragland

## Working together to treat cystic fibrosis

This past year, Rush Children's Hospital welcomed Lucille Lester, MD, a pediatric pulmonary specialist, as co-director of the Rush Cystic Fibrosis Center. Lester shares the helm with co-director John Lloyd-Still, MD, a pediatric gastroenterology specialist. With more than 40 years of experience in caring for children with cystic fibrosis (CF) between them, this pair has helped build the Rush Cystic Fibrosis Center into one of the largest centers in Chicago.

Cystic fibrosis, a genetic disorder that leads to severe digestive and pulmonary problems, affects approximately 30,000 children and adults in the United States. Diagnosis usually occurs during the first five years of life. Before 1970, most children with this disease died between the ages of 12 and 15. Today, the median age of survival is 33. Lester attributes the increase in survival time to improved antibiotics, greater attention to nutrition and a more aggressive approach to treatment.

Centers like the one at Rush have played a valuable role in improving life expectancies in these children. At the Rush Cystic Fibrosis Center, regular visits with a team of specialists, which includes two physicians, a respiratory therapist, a clinical nutritionist, a social worker and a nurse, help ensure that potential health problems are caught early on. "We can sometimes spot something that's going to give someone trouble before they've even noticed it," Lester says. "What we have here is definitely a proactive model of care."

Unlike other programs in the area, Rush's center has co-directors who represent two important specialties in the care of children with CF — pulmonary medicine and gastroenterology. Often the most serious problems in these children arise from respiratory failure and gastrointestinal problems such as intestinal blockage and liver disease. According to Lester, the close collaboration between specialties allows for the best possible patient care.

And the doctors aren't the only ones who make a difference. The center's clinical nutritionist, Catherine Powers, RD, LD, identifies and



Photograph by Andrew Campbell

Lucille Lester, MD (above), has more than 20 years of experience in caring for children with cystic fibrosis.

solves dietary problems—an important factor, given that lung disease and decreased appetite often go hand in hand. Social worker, Carolyn Utech, LCS, helps children and their families deal with stress, find insurance alternatives and make important health care decisions. And Jeannine Cheatham, MSN, CF, nurse specialist, works closely with patients to implement treatment plans.

With a wealth of resources at its fingertips, the Rush Cystic Fibrosis Center helps guide children and their families through a difficult illness that is both a physical and emotional strain. The center has expanded recently to include a program to accommodate the growing number of adults living with CF.

For a CF specialist like Lester, seeing her pediatric patients move into adulthood is particularly exciting. "Success for us is when our patients grow up and move on to adult CF programs," she says.

—Jill Waite

## Trustees elected to executive committee

Robert Darnall, William Goodyear, Sheli Rosenberg and Pam Strobel have been elected to the Executive Committee of the Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center.

Darnall, who last fall was elected general trustee, is chairman of Prime Advantage Corporation, an internet-based volume discount provider of goods and services for manufacturing firms. He is the recently retired chairman of Ispat North America, Inc., the regional headquarters of Ispat International, N.V. He has been a member of the Leadership Committee for the Rush Heart Institute since 1987.

Goodyear is chairman and chief executive officer of Navigant Consulting Inc., a Chicago-

based consultant for utilities, insurers, pharmaceutical and other companies. He is the former chairman and CEO of Bank of America, Illinois. Goodyear has been a member of the Rush Board of Trustees since 1995, and he is a member of the Finance and Audit Committee and the Leadership Committee for the Rush Primary Care Institute.

Rosenberg, a trustee since 1996, is vice chairman of Equity Group Investments. She joined Equity in 1980 and was named president and chief executive officer in 1994. Rosenberg is a member of the Rush Institute



Robert Darnall



William Goodyear



Sheli Rosenberg



Pam Strobel

for Healthy Aging, and she serves on a number of corporate and volunteer boards, including the Chicago Council of Lawyers and the Chicago Bar Association.

Strobel is executive vice president of Exelon Corporation and president of Exelon Energy Delivery Company. She also serves as vice chair of ComEd. She was first elected to the Rush Board of Trustees in 1997 and currently chairs the Rush Children's Hospital Leadership Committee.

## Rush community program helps homeless families

**K**ids-SHIP, a Rush community service program that targets the health care needs of homeless families in the Chicago area, received a huge boost in April when the Chicago-based John R. Housby Foundation awarded the fledgling program a grant that has helped it to expand its services.

In Kids-SHIP, which stands for Kids Shelter Health Improvement Project, Rush pediatricians make house calls to area homeless and women's shelters to provide health care to the shelters' clients.

The program grew out of a vision that Rush pediatric psychologist Jeannie Aschkenasy, PhD, had in 1987 when she read about a man collecting spare change for a group called Common Cents. "He said that homeless people are like pennies, that no one notices them anymore," says Aschkenasy, who not only noticed, but decided to do something to help the city's homeless population.

Before the clinic opened, Aschkenasy, clinic director Beth Volin, MD, and clinical coordinator Michelle Camburn compiled a medical assessment to determine which health care services homeless children needed.

"The assessment was a *Field of Dreams* test," Aschkenasy says. "We wanted to know, if we built it, would they come?" They did come. And as a result, what started as an effort to treat children who visited the Rush Pediatric Primary Care Clinic has — thanks to additional funding, including the recent grant from the Housby Foundation — evolved



As part of the Kids-SHIP program, Rush pediatrician Margaret Scotellaro, MD, visits local homeless and women's shelters to provide health care to the shelters' clients.

into an outreach program staffed by two Rush pediatricians who visit as many as 10 Chicago shelters on a regular basis.

"The trick is to get kids to come here, and we can't do that effectively unless we reach out to where they are," says Volin. She indicated that the Rush pediatricians see an inordinately high number of children with asthma, tuberculosis, lead poisoning and developmental and educational problems.

On their first visit to the clinic, children receive a thorough, three-hour consultation and exam from licensed social worker Colleen

Flynn, psychologist Ashkenasy, pediatric nurse Regina Taylor and Volin. "Once we get them into our clinic, we often treat the teenage parents, too, or we refer adult parents to appropriate physicians," Volin says, adding that Kids-SHIP families receive care from top Rush specialists.

Ultimately, Aschkenasy would like to see Kids-SHIP branch out to other parts of the city, to reach even more children. But for now, she is content to nurture her brainchild as it continues to develop and thrive.

— Judy Grossman

## Recent appointments at Rush

**Henry Black, MD**, the Charles J. and Margaret Roberts Professor of Preventive Medicine and chairman of the Department of Preventive Medicine, has been named associate vice president and associate dean for research. At Rush since 1992 and board-certified in both internal medicine and nephrology, Black has focused his prolific research—he is the author or co-author of more than 175 papers—on the diagnosis and treatment of hypertension. As chair of one of Rush's Institutional Review Boards, he helped coordinate the recent re-review of the Medical Center's 1,200 human research studies.

**Joel A. Block, MD**, director of the Department of Internal Medicine's Section of Rheumatology, was appointed to the Willard L. Wood, MD, Chair of Rheumatology. Block, a professor of internal med-

icine and biochemistry at Rush University, has served as director of the Rush Center for Clinical Studies since 1997. His research focuses on the role of cartilage metabolism in the development and progression of osteoarthritis and rheumatoid arthritis, and he has published more than 90 papers and abstracts on his studies. Block is a Diplomate in Rheumatology of the American Board of Internal Medicine.

**Anthony Cutilletta, MD**, has been named associate vice president and associate dean of interinstitutional affairs. Cutilletta is currently professor of pediatrics, director of the Section of Pediatric Cardiology and medical director of the Rush Children's Heart Center, as well as assistant professor in the Department of Health Systems

(continued on next page)

## Rush elects new trustees

Robert F. Finke, Sue Ling Gin, Robert Heidrick, Carl W. Stern, John R. Willis and Thomas Wilson have been elected general trustees, and Sue Austin has been elected annual trustee of Rush-Presbyterian-St. Luke's Medical Center.

Finke is senior partner with the law firm of Mayer, Brown & Platt. He joined the firm in 1967 and was named a partner in 1973. Finke is a member of the American Bar Association, and he serves on the leadership committees for the Rush Neuroscience Institute.

Gin, owner and chief executive officer of Flying Food Group, Inc., has been in business in Chicago for more than 35 years. She was a partner in two successful Chicago restaurants, then launched Flying Food Fare in 1983 to provide catering to airlines. She serves as a director on numerous boards and is vice chairman of the Chicagoland Chamber of Commerce.

Heidrick is a partner with Heidrick & Struggles International, Inc., the world's largest executive search firm. Previously he was presi-

dent of Heidrick Partners, Inc., a national executive search firm based in Chicago. Active in community affairs, Heidrick has served as chairman of the board of the American Cancer Society-Illinois division and as trustee of the Illinois Institute of Technology.

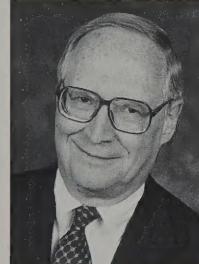
Stern is president and Chief Executive Officer of the Boston Consulting Group. He joined BCG in 1974, and from 1981 to 1991 he headed the Chicago office. He then served as co-chair of the company's Americas Region before being elected president and CEO in late 1997. Stern is also a founding member of the leadership committee for the Rush Arthritis and Orthopedics Institute.

Willis is co-chief executive officer, managing partner and general partner at Willis Stein & Partners, a leading private equity investment firm that he co-founded in 1995. He previously was president of Continental Illinois Venture Corp., an investment firm affiliated with Bank of America. Willis serves on several boards and on the dean's advisory

council of the Krannert School of Management at Purdue University.

Wilson is chairman and president of Allstate Life Insurance Company and a member of Allstate Insurance Company's senior management team. He previously was vice president of strategy and analysis for Sears, Roebuck and Co., and managing director of mergers and acquisitions at Dean Witter Reynolds. In 1998, he was one of nine chief financial officers chosen for CFO Magazine's Excellence Award.

Austin became president of the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center in October. She joined the Woman's Board in 1982 and has served in many leadership roles over the years: chairman of the Child Psychiatry Committee, executive vice president for administration, Art Gallery Committee chair and chairman of the Gift Shop Committee. In 1996, she chaired the annual Woman's Board Fashion Show.



Robert F. Finke



Sue Ling Gin



Robert Heidrick



Carl W. Stern



John R. Willis



Thomas Wilson



Sue Austin

Management in the College of Health Sciences. Through the Rush Children's Heart Center, Cutilletta and his staff coordinate the care of children with congenital and acquired heart defects and heart disease at locations throughout the greater Chicago area.

**Robert DeCresce, MD, MBA, MPH**, was appointed chairman of the Department of Pathology. He is associate professor of pathology at Rush University, director of clinical laboratories, associate vice president for diagnostic services at the Medical Center and co-director of the pathology residency program. DeCresce came to Rush in 1991 from Michael Reese Hospital, where he was acting chief of service and director of laboratory services, operations and planning. He is a fellow of the College of American Pathologists, the American Society of

Clinical Pathologists and the American Board of Clinical Biochemistry.

**Donald M. Jensen, MD**, professor of internal medicine and director of the Section of Hepatology, has been named the Richard Capps, MD, Chair of Hepatology. Jensen has received national recognition for his clinical research activities in the area of viral hepatitis, which has spurred growth in patient referrals to the hepatology clinical service. Since 1996 he has served on the Regional Organ Bank of Illinois' Subcommittee on Liver, Small Bowel and Pancreas Transplant. Jensen is a graduate of the University of Illinois Medical School and completed fellowship and residency programs at Rush.

# Robert H. and Terri Cohn Research Building Ushers in New Era of Research at Rush



Photography by Andrew Campbell



Clockwise from above:  
Terri Cohn cuts the ribbon at the dedication ceremony for the building named for her and her late husband, Robert; even rain couldn't dampen the crowd's enthusiasm at the opening ceremonies for the Cohn Building; Walter Whisler, MD, PhD, chairman of the Research Building Advisory Committee, and Edward A. Brennan, chairman of the Board of Trustees.



**R**esearch is the foundation upon which all improvements in patient care are built," Rush President and CEO Leo M. Henikoff, MD, told an audience of more than 200 Rush researchers and guests at the ribbon-cutting ceremonies for the Robert H. and Terri Cohn Research Building. "Research has a long and distinguished history at Rush, but for the past 20 years we have lacked sufficient research space."

With a snip of the ceremonial scissors, those years came to an end on May 22. Said Henikoff, "I believe that today's dedication marks the beginning of the greatest era of research for this Medical Center and its patients."

In the years to come, the eight-story Cohn building will house cutting-edge medical investigations. In its state-of-the-art labs, researchers will be studying illness — everything from arthritis and cardiovascular disease to cancer and HIV/AIDS — on a completely different level. Instead of addressing symptoms, they will take the battle directly to where so many of these problems originate: in our genes.

Terri Cohn attended the ceremony with her four grown children and their families. Robert Cohn, a Rush trustee, died on July 16, 1999, after a long illness. It was the Cohns' multimillion-dollar gift that allowed Rush to begin work on the building. "Without them," said Edward A. Brennan, chairman of the Board of Trustees, "we would still be studying the blueprints instead of dedicating the building."

— Judy Grossman

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